Preliminary Environmental Assessment

Montana Environmental Policy Act

2004

REVISION OF MONTANA'S ELK MANAGEMENT PLAN AND IMPLEMENTATION OF ADAPTIVE HARVEST MANAGEMENT FOR ELK

COVER SHEET

Environmental Assessment of 2004 Revision of Montana's Elk Management Plan

Proposed Action: Montana Fish, Wildlife and Parks (FWP) proposes to revise Montana's Elk Management Plan to adopt the Adaptive Harvest Management (AHM) approach to elk population management and establishment of elk hunting regulations. At the Elk Management Unit (EMU) level, this includes specific objectives for indicators of elk population level, a set of hunting regulation packages (Standard, Liberal, and Restrictive) with population measurement criteria (triggers) for moving from one package to another, and a monitoring program that includes specific trend areas and parameters to be measured. This approach directly ties recommended hunting regulation packages to results of monitoring data for elk population trend counts, sex/age ratios, and other factors. The proposed action would occur across the entire state of Montana and would be implemented upon approval by the FWP Commission and making and signing of a Record of Decision by the FWP Director. This EA tiers to the Draft revised Elk Management Plan and incorporates it by reference.

Type of Document: Environmental Assessment

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Public Comments: Public comments on this document will be accepted through November 8, 2004. Please address comments to: Wildlife Division**,** MFWP, 1420 East 6th Ave., PO Box 200701, Helena, MT 59620-0701 or fwpwld@state.mt.us

Special Note: Comments received in response to this Environmental Assessment will be available for public inspection and will be released in their entirety if requested pursuant to the Montana Constitution.

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ACRONYMS AND ABBREVIATIONS

AB –Antlered Bull
AHM – Adaptive Harvest Management
ARM – Administrative Rules of Montana
ATV – All-Terrain Vehicle
AU – Animal Unit – as used here, one cow, calf, steer, heifer, or bull alive on 1 January
AUM – Animal Unit Month (one animal unit for 1 month)
BAB – Branch-Antlered Bull
BLM – Bureau of Land Management
BM – Block Management
BTB – Brow-Tined Bull
CDOW – Colorado Division of Wildlife
CE – Cattle Equivalent – as used here, 1 elk = 0.5 CE AU and 1 sheep = 0.2 CE AU
CWD – Chronic Wasting Disease
CWMU – Cooperative Wildlife Management Unit
DNRC—Montana Department of Natural Resources and Conservation
EA – Environmental Analysis
EMU – Elk Management Unit
ES – Either Sex
FWP – Montana Fish, Wildlife & Parks
FY – Fiscal Year
HB – House Bill
HD – Hunting District
LE – Limited Entry
MEPA – Montana Environmental Policy Act
MBO – Montana Board of Outfitters
MCA – Montana Codes Annotated
MRB – Missouri River Breaks
MOGA – Montana Outfitters and Guides Association
ORV – Off-Road Vehicle
PL/PW – Private Land/Public Wildlife
RFW – Ranching for Wildlife
SB – Senate Bill
USDA – United States Department of Agriculture
USDI - United States Department of Interior
USFS – United States Forest Service
USFWS – United States Fish and Wildlife Service
USGS – United States Geological Survey
WMA – Wildlife Management Area
YNP – Yellowstone National Park

CHAPTER 1 – PURPOSE OF AND NEED FOR ACTION

DESCRIPTION OF PROPOSED ACTION

Montana Department of Fish, Wildlife & Parks (FWP) and the FWP Commission propose to revise Montana's Elk Management Plan, which has existed without major changes since 1992. The major proposed change is the development and integration of an Adaptive Harvest Management (AHM) approach to elk population management and establishment of elk hunting regulations. At the Elk Management Unit (EMU) level, this includes specific objectives for indicators of elk population level, a set of hunting regulation packages (Standard, Liberal, and Restrictive) with population measurement criteria (triggers) for moving from one package to another, and a monitoring program that includes specific trend areas and parameters to be measured. This approach would directly tie recommended hunting regulation packages to results of monitoring data for elk population trend counts, sex/age ratios, and other factors. The proposed Regulation Packages in AHM are designed to be substantially different and produce measurable changes in the population. Thus, when the population is above or below it's objective range; the proposed Liberal or Restrictive Regulation Packages are designed to quickly return the population to its objective range. The proposed Standard Regulation Package, employed when the population is within objective range, usually contains regulation(s) that provide more incremental annual changes (small adjustments) to maintain the population within objective range.

Additionally, revisions of individual EMU plans consider management challenges that have surfaced since 1992 or have not been solved since that time, as well as address issues raised in public scoping. FWP proposes to implement a public information program to provide the public timely information on the status of elk populations throughout Montana. This information along with the proposed elk population objectives and proposed Regulation Packages presented in the Elk Plan will provide the public a more predictable expectation of likely hunting season regulation recommendations by FWP. This EA tiers to the Draft revised Elk Management Plan and incorporates it by reference.

PURPOSE AND NEED OF PROPOSED ACTION

FWP is mandated by law [Section 87-1-201, Montana Codes Annotated (MCA)] to protect, preserve, manage and propagate Montana's fish and wildlife resources for public benefit now and in the future. Management goals developed by FWP (FWP 1992) under this authority include, but are not limited to:

Goal A – Manage with a focus on ecological systems to reflect the diversity of all wildlife and their habitats, while maintaining our commitment to Montana's hunting and fishing heritage.

- Ensure that FWP programs comply with the Montana Environmental Policy Act (MEPA) [87-1-201(9)(c), MCA].
- Maintain and enhance fish and wildlife populations for public use and recreation.

- Ensure protection of fish, wildlife and parks resources through state-of-the-art law enforcement.

Goal B – Provide increased opportunities for public enjoyment of fish, wildlife and parks resources while maintaining our commitment to improve landowner/sportsperson relations.

- Provide adequate access and supply information to ensure appropriate use.
- Encourage continued public participation in hunting by balancing the need to provide simple and consistent regulations with the public's desire for diverse hunting opportunities.

Goal C – Elevate the importance of public education and participation in all program areas to afford citizens the opportunity to better understand, appreciate and make informed decisions about our natural and cultural resources.

- Encourage and aid communication: (1) within FWP to better understand the needs and expectations of all people interested in Montana's natural and cultural resources, and (2) among constituents who may have conflicting interests in natural resource issues.

Within these broad goals, the goals, objectives and strategies outlined in the Draft of the revised Montana Elk Management Plan were formulated to advance the FWP mission with emphasis on:

- Sustaining and managing elk populations for public benefit.
- Developing solutions to elk conflicts on private and public lands arising because of high elk numbers in some locations and lack of adequate hunter access to harvest those elk.
- Promoting conservation of habitats that support Montana's elk populations.
- Providing the public with elk-related recreational opportunity and promoting habitat conditions required to maintain elk hunting opportunity and a diversity of elk hunting experiences.
- Informing and involving the public in planning future management of Montana's wildlife resources.

To achieve these goals and objectives, FWP and the Montana FWP Commission believe that an improved approach to establishing elk population objectives, new strategies for achieving those objectives, and improved monitoring of elk populations in relation to those objectives is necessary. Harvest regulations are but one aspect of elk management, but are very important in attempting to regulate elk numbers and distribution. Similarly, hunting access management is crucial to achieving elk population objectives. To address elk population management issues raised internally and by the public, FWP in the Draft Elk Management Plan proposes to incorporate Adaptive Harvest Management (AHM) into the hunting regulation setting process. This proposal will be similar to the AHM program adopted for mule deer, but in it's initial stages, will be less ambitious. Community-based solutions for determining elk management objectives will also be incorporated where appropriate.

FWP believes that the AHM approach is necessary in revising Montana's Elk Management Plan to more successfully address elk management issues and challenges

raised internally and by the public, including more effectively maintaining elk populations within objective ranges. Adopting the proposed AHM management approach will benefit Montana's public and landowners by establishing realistic elk management objectives, and achieving those objectives in a more timely manner by improved detection of deviations from objectives and implementation of proposed pre-planned Regulation Packages to move elk populations to objective levels.

DECISIONS TO BE MADE

With approval by the FWP Commission, the Director will make a Record of Decision that will guide future elk management by FWP. The decision may adopt one of the Alternatives analyzed in this EA or a modification of one of the Alternatives and will be based on the efficacy of the Alternatives to achieve elk management goals; the environmental impacts described in this EA; and the comments received through public review of the Draft revised Elk Management Plan and this EA.

FWP Commission: The FWP Commission is the policy making body that oversees the state's wildlife management program. Powers of the Commission include: "(a) set the policies for the protection, preservation, and propagation of the wildlife, fish, game, furbearers, waterfowl, nongame species, and endangered species of the state and for the fulfillment of all other responsibilities of the department as provided by law"; and "(b) establish the hunting, fishing, and trapping rules of the department;" [Section 87-1-301(1), Montana Codes Annotated (MCA)]. Further authority is provided by MCA 87-1-304(1), which states: "The commission may fix seasons, bag limits, possession limits, and season limits; open or close or shorten or lengthen seasons on any species of game, bird, fish, or fur-bearing animal as defined by 87-2-101"; (MCA). By approving and adopting a revised Elk Management Plan, the FWP Commission would be setting policy for elk management as well as establishing a set of adaptive elk harvest regulations by Elk Management Unit (EMU).

FWP: Changes subject to FWP authority can be implemented upon a change in department policy and/or a change in the Administrative Rules of Montana (ARM). ARM rules can be adopted by FWP following a formal rule-making process that includes public notification and an opportunity for public review and comment.

Montana Legislature: Possible changes to the Draft Elk Management Plan or mitigating actions resulting from issues raised by the public or this EA could include elements that would be subject to legislative authority. This would require FWP to draft legislation for consideration by the Montana Legislature.

OTHER AGENCIES NOTIFIED, OR WITH JURISDICTION OR RESPONSIBILITY

The USDA - Forest Service (USFS), the USDI - Bureau of Land Management (BLM), the US Fish and Wildlife Service (USFWS) and Montana Department of Natural

Resources and Conservation – State Lands (DNRC) all have authority for public lands management (including elk habitat) in Montana.

The Montana Department of Labor and Industry - Business Standards Division – Montana Board of Outfitters is responsible for issuing hunter outfitting licenses and the enforcement of laws regulating the outfitting industry (37-47-201, MCA).

HISTORY AND RESULTS OF PLANNING AND PUBLIC SCOPING PROCESS

In November 2002, FWP announced that the 10-year-old statewide elk management plan would be updated and sought public comment on issues and concerns associated with elk and elk management in Montana. The call for comments (scoping for issues) was issued through news releases to Montana newspapers and radio stations and by announcement on the FWP website. The announcements indicated that some issues raised in internal scoping were that about 60% of Montana's 35 Elk Management Units (EMUs) were above population objectives for elk numbers, there were increased landowner damage complaints, hunters were frustrated with lack of access to elk in private land "refuges", federal and state objectives differed, and encouraged submission of other issues.

FWP encouraged comments to be sent via email to a link at www.fwp.state.mt.us or by mail to: Elk Plan Update, Montana Fish, Wildlife and Parks, P. O. Box 200701; Helena, MT 59620-0701. The comment period was set to close 30 December 2002. In practice, comments received through 18 February 2003 were used in the scoping process.

Through 18 February 2003, FWP received 409 total responses from the public to the call for scoping of issues. Many of the comments were proposed "solutions", but the underlying issues could be determined from the comments. Of responses, 330 were via email, 65 were written, and 14 were written responses from groups/agencies. Respondents were from 94 different Montana towns and 15 states other than Montana. Known locations of respondents were: Helena – 36; Billings – 24; Missoula – 21; Great Falls – 20; Butte – 18; Bozeman – 11; Kalispell – 10; Hamilton – 9; Stevensville – 7; 6 each from Belgrade, Corvallis, Dillon, Lewistown, Anaconda, East Helena, and Clancy; 5 each from Florence, Eureka, and Laurel; 4 each from Columbia Falls, Libby, Lolo, and Bigfork; 3 each from Colstrip, Glendive, Livingston, Troy, Victor, Whitehall, and Townsend; 2 each from Charlo, Clinton, Columbus, Cut Bank, Darby, Fort Benton, Gallatin Gateway, Glasgow, Havre, Hungry Horse, Polson, Red Lodge, Ronan, Roundup, West Yellowstone, and Whitefish; and 1 response each from Alberton, Ashland, Big Sky, Big Timber, Boyd, Carter, Chester, Clyde Park, Conrad, Deer Lodge, Dupuyer, Elliston, Ennis, Fairfield, Fairview, Fishtail, Forest Grove, Frenchtown, Garneill, Geraldine, Glen, Hardin, Hilger, Huson, Joliet, Manhattan, Melstone, Molt, Noxon, Pablo, Park City, Proctor, Rocker, Sand Coulee, Shelby, Shepard, Stanford, St. Ignatius, Stockett, Thompson Falls, Toston, Trout Creek, Twin Bridges, Vaughn, West Glacier, White Sulphur Springs, Wibaux, and Wilsall. Non-resident locations were: 5 each from California and Minnesota; 4 from Wisconsin; 2 each from Illinois, Nevada, North Dakota, and Wyoming; and 1 each from Florida, Michigan, Missouri, Pennsylvania, South Dakota, Texas, Vermont, and Washington.

The following groups/agencies sent responses: Billings Rod & Gun Club; Eastern Sanders County Sportsmen's Club; Gallatin Wildlife Association; Glacier National Park; Helena Hunters and Anglers Association; Wild Divide Chapter Montana Wilderness Association; Montana Bowhunters Association; Montana Wilderness Association; Montana Wildlife Federation; Noxon Rod & Gun Club; Prickly Pear Sportsmen's Association; Skyline Sportsmen's Association; USDA Forest Service, Beaverhead-Deerlodge National Forest; and Western Montana Fish & Game Association. Two individual comments also identified themselves as employees of the USDA Forest Service, Lewis & Clark National Forest.

Additionally, we used bills submitted to the Montana Legislature to scope for issues. As of 4 February 2003, 23 bills were related to elk management planning issues.

ISSUES IDENTIFIED THROUGH PUBLIC INVOLVEMENT

Elk management issues raised internally and by the public were similar to those raised in 1991-1992. However, some new issues/sub-issues have developed and some subjects that were issues in 1991-1992 have been unresolved and intense concern has developed about them. Below, we list issues/sub-issues and give a summarized example of comments related to those issues. A single comment could be related to more than one issue. More complete summaries of comments and number of respondents making those comments are presented in Appendix A. Not all issues/sub-issues were relevant to the proposed action and some are not addressed differently in the Alternatives. Therefore, although all issues raised are discussed at least briefly in following sections, only issues relevant to the proposed action and those addressed differently by the alternatives will be analyzed for Environmental Consequences (Chapter 4).

Elk Population Numbers

Example comments – Acceptance of elk populations being too high in some areas with suggestions for harvest strategies to decrease population levels; elk populations are not too high, at least in northwestern Montana; too many elk are harming habitat on private/public lands; too many elk are harming the mule deer population; damage assistance to landowners; high elk populations are the fault of landowners closed to hunting or mild weather, etc.

> Major sub-issues – definition of "too many elk"/setting population objective levels; access to/availability of elk for harvest; effects of high elk numbers on elk populations, elk habitat, and landowners.

Access to Lands For Elk Hunting

Example comments – Private land "refuges"/fee hunting are problems; open closed roads/increase retrieval opportunities; outfitter leasing is closing access; Montana Wildlife Partnership as discussed by the Montana Stockgrower's Association and

privatization of wildlife are problems; have more road closures/preserve wilderness & roadless areas; ATV's are a problem; Block management is good; help with elk damage tied to hunter access; older hunters can't access some areas; problems with access in some Block Management Areas/A-7 areas; fine/tax leased lands; non-resident/corporate landowners; tie grazing rights to access; the rich shoot bulls and the Montana resident have to "clean up" overabundance problems; fencing issues; buy more land/trail access; corner section crossing law; elk are "lured" to private lands; etc.

> Major sub-issues – private land "refuges"/closures; outfitter leasing of private lands for hunting; ATVs; game retrieval; roadless/security areas; the aging hunter problem; Montana Wildlife Partnership proposal/privatization.

Hunting Regulations/Strategies

Example comments – weather is the problem – extend season 1-4 weeks; more trophy bull management/raise bull:100 cow ratios; the youth either-sex (ES) season is great – expand; 7-year waiting period for bull permits in drawings; more antlerless/ES hunting (2 days – 1 week – season-long); likes/doesn't like brow-tined bull (BTB) season; more late season hunts; the past has been a success; put bull permits on the preference point system (Bonus point program); A-7 licenses are good/bad; choose your weapon; limit archery hunters just like rifle hunters; rifle hunt during the rut; open muzzleloader season; expand youth ES season to senior citizens; more archery opportunities; use quota system/season open until quota filled; reduce antlerless harvest; issue second elk tag (antlerless B-tag); more opportunity for disabled hunters; increase antlerless permits; put all elk hunting on drawing (Limited Entry) or validate by area (pick your hunting district); use a split season (early – rest – late); first week antlerless – last 4 weeks bulls only; etc.

> Major sub-issues – effects/potential effects of various season types; trophy hunting/bigger bulls; weather effects; competition for elk, especially bulls among various hunter groups.

Equity of Opportunity

Example comments – open more roads/more retrieval opportunities, especially for older/disabled hunters; the Montana Stockgrower's Montana Wildlife Partnership proposal/privatizing wildlife; 7-year waiting period for bull elk permits; hunters are getting older; bull elk permits in Bonus point program; choose your weapon; archery/muzzleloaders; ES senior citizen hunts; equal access to bulls; hunting during the rut; disabled hunters; public trust/represent all hunters; wealthy non-resident hunters have better access; etc.

> Major sub-issues – hunters are getting older/access & retrieval; archery vs. rifle hunters; other weapons/special experience groups; competition for bull elk/hunting experience.

Economic Issues

Example comments – outfitter leasing problems; tax land leased for hunting at a higher rate; limit outfitter numbers; eliminate outfitter set-aside, it has led to more leasing; the Montana Stockgrower's Montana Wildlife Partnership proposal/privatization; damage assistance to landowners; buy land/access/conservation easements; license costs too high/low; landowners allowing public hunting should be able to sue their neighbors who don't allow hunting for any damages; grazing fees/rights and hunter access; expansion of Block Management, etc.

> Major sub-issues – outfitter leasing; Montana Wildlife Partnership proposal; land/conservation easement purchases; costs of elk damage to private & public lands; hunting license costs; costs of improved surveys of elk numbers, harvest and habitat impacts.

Biological/Ecological Issues

Example comments – Effects of wolves/other predators; elk numbers are not too high – at least on public lands and northwestern Montana; Chronic Wasting Disease; low calf:100 cow ratios; effect of high elk populations on mule deer; archery wounding loss; transplant surplus elk; etc.

> Major sub-issues – wolves/other predators; Chronic Wasting Disease; elk numbers/objectives.

Habitat Issues/Game Damage Issues

Example comments – overgrazing by domestic livestock on public lands; overgrazing by elk on all lands/carrying capacity; fencing issues; weeds; logging; housing development; winter range; wilderness/backcountry/roadless habitat; cooperation with private, state and federal land managers; land management agencies goals differ from goals of FWP; management of state Wildlife Management Areas (WMAs); etc.

> Major sub-issues – forage competition – livestock/elk; competing land uses; secure habitat for elk; management of State WMAs.

Information/Data Issues

Example comments – better information from FWP about where harvest is needed; better elk population counts/censuses/inventory; mandatory hunter reporting of kills; post (a variety) of information on the FWP website; more habitat monitoring information; etc.

> Major sub-issues – elk population counts and objectives; elk harvest estimates; more information to public on website and by other methods.

Discussion of All Issues

In addition to the discussion in this EA, a comprehensive analysis and discussion of issues is presented in the Draft revised Montana Elk Management Plan. During preparation of the 1992 Elk Management Plan forest management was probably the major issue with the public. Scoping for preparation of this Draft revised Elk Management Plan indicated that numbers of elk, their distribution, use of private lands, and hunter access to those elk were, combined, the biggest issues with the public currently. All issues raised by the public were interrelated to some degree. Many responses were suggestions for hunting regulations/strategies to deal with overabundance problems where they occurred. Other responses, especially from northwestern Montana, emphasized that there were NOT too many elk. Mild weather during recent hunting seasons and lack of hunter access to some private lands were given as the main causes of elk population increases in some areas, especially southwestern Montana. Outfitter leasing of hunting rights on private lands, fee hunting, and the buying of ranches by wealthy out-of-state individuals for private hunting ranches were all targeted as contributing factors to local overabundance problems. These situations were especially frustrating to many when the damage problems occurred after the season on lands owned by people who did allow public hunting during the general season.

Related to the above was the seemingly increasing demand for trophy/larger/older bull elk and decreasing demand for harvest of antlerless elk. The high fees and limited access to bull elk on some private lands exacerbate the "competition" for bull elk by the general public on public lands. The Montana Stockgrower's Montana Wildlife Partnership proposal to issue licenses to landowners, which they could then sell at market rates, aroused considerable opposition. This proposal has since been withdrawn, but the public remains very concerned about "solutions" which "privatize" Montana's wildlife. Outfitter leasing of hunting rights on private lands came under particularly severe criticism, with proposed "solutions" ranging from limiting outfitters, to banning them entirely, to getting rid of the outfitter set-aside licenses, to taxing leased lands at commercial rates. Many viewed the elk overabundance problems in some areas as being created by the very people complaining about it.

Access to <u>public</u> lands was also a major issue as it was in 1991-1992. The public was relatively evenly split over increasing/decreasing motorized access on roads and trails. Concerns included quality of the hunt, redistribution of elk to private land "refuges", habitat destruction, and bull elk security and vulnerability on one side. The other side was concerned about easier access to harvest elk in general and increased game retrieval opportunities. A relatively new issue related to this was that of an ageing hunting population. This was especially important to the retrieval issue and antlerless hunting. Many stated that they just could not pack an elk out over long distances from roads. Thus, some believed that lack of access and especially retrieval access contributed to lower antlerless harvests and increasing elk populations.

The aging hunter population issue was also part of the larger equity/opportunity issue. This issue concerned equitable distribution of the opportunity to harvest elk among all

hunters. It included the seemingly greater access that wealthy hunters had to bull elk on private lands, opportunities for the young, elderly, and disabled hunters, and competition among hunting weapons groups (rifle, archery, muzzleloaders) for special privileges/opportunities. Competition for bull elk permits in Limited Entry hunting districts is such that there was interest in instituting a 7-year waiting period for application after receiving a permit, just as for moose, sheep and goats.

Many comments/suggestions raised economic issues. These included problems perceived as resulting from outfitter leasing of hunting rights, fee hunting, and the Montana Stockgrower's proposal. Suggestions ranging from tighter regulations to restrictions to changing tax structure all have considerable economic impacts. Economic damage to private lands by elk and suggested solutions to this damage also raised economic issues. Buying of land/access/conservation easements as well as changes in elk hunting license fees also are economic issues.

Biological/ecological issues raised were relatively few, but a very important issue has risen to near the top since 1992. The effects of wolves, particularly, but other predators as well, on elk population numbers and calf recruitment is of major concern to much of the public. Rather than problems of too many elk in some areas, they are concerned that wolves will reduce the elk populations and reduce hunting opportunities. A smaller portion of the responding public was concerned that emphasis on elk management and elk hunting would be to the detriment of wolves. The potential effects of Chronic Wasting disease on elk populations was another biological issue of concern. Some believed that we should address the potential impact of high elk numbers on mule deer populations.

Issues related to elk habitat/habitat management did not appear to be the top issue as in 1991-1992, but remained very important for many in the public. There was concern about the effects on habitat of overgrazing by both domestic livestock and elk. Habitat security for elk and maintenance of roadless, back-county areas was also an area of concern. There was acknowledgment of differences in the goals of FWP and various land management agencies. There was not agreement on what should be done to help solve these conflicts. Management of WMAs, weeds, logging, and housing development also were areas of concern.

Finally, the public was concerned about both their own need for information from FWP and the need of FWP for better information about wildlife populations in order to better manage those populations. The public would like more information and more timely dissemination of information, including greater use of the FWP website to provide that information. Some of the public also believe FWP should have better elk population census information and better harvest information. The cost of attempting to address these concerns also raises economic issues.

ISSUES EVALUATED IN THE EA

Comments received during the public scoping process and issues identified during internal discussions fell into 8 broad issue categories:

- Elk population numbers
- Hunting regulations/strategies
- Access to lands for elk hunting
- Equity of opportunity
- Economic issues
- Biological/Ecological issues
- Habitat/Game Damage issues
- Information/Data issues

Issues relevant to the proposed action or treated differently between the Alternatives that will be evaluated for environmental consequences in this EA are listed below.

Elk Population Number Issues

1. Elk population numbers and objective levels.

Hunting Regulations/Strategies

2. The effects/potential effects of various hunting regulations/strategies on elk, hunters, outfitters, landowners, and the environment.

Hunting Access Issues

3. Hunter access to elk and availability of elk for harvest.
4. Effectiveness of Block Management and other hunter access programs.

Equity of Opportunity

5. Competition for elk, especially bull elk, among various hunter weapon user groups, residency status and economic status category.

Economic Issues

6. Costs of elk damage to private and public lands (also a Habitat/Game Damage issue).
7. Impacts of changes in elk management to income of hunting outfitters, landowners, and FWP.

Biological/Ecological Issues

8. Chronic Wasting Disease/Brucellosis

Habitat/Game Damage Issues

9. Effects of high elk numbers on elk habitat, the health of elk populations, agricultural landowners livelihoods and private land habitat (also an Economic issue).

Information/Data Issues

10. Improved accuracy and reliability in surveys of elk numbers and harvest.
11. Providing more information to the public in a timely manner via the FWP website and by other methods.

ISSUES RAISED BY THE PUBLIC BUT NOT EVALUATED IN THE EA

Some issues/sub-issues of concern to the public fell outside the scope of the proposed action, involved items for which FWP has no legal authority, were not relevant to the proposed action, or were not treated differently between Alternatives. In the following section, we describe these issues/sub-issues and explain the rationale for excluding them from analysis in this EA.

1. Wolf predation on elk/effects of other predators on elk.

   The issue of wolf predation on elk as well as effects of other predators on elk will be major considerations in elk management in years to come and is discussed in some detail in the Draft revised Elk Management Plan. However, this issue is beyond the scope of the proposed action and this EA. Management approaches proposed in the revised Elk Management Plan will take into account any reduced calf:100 cow ratios (survival) or reduced population levels, regardless of their causes. Thus, any reduced survival of elk related to wolves will be accounted for in the Draft revised Elk Management Plan. Montana has completed an approved Wolf Management Plan that will take effect if wolves are delisted from Endangered species status by the U. S. Fish & Wildlife Service (USFWS). That plan will be the document controlling wolf management in Montana should Montana receive management authority for wolves. Until that time, the USFWS is the controlling authority for wolf management in Montana. When Montana receives wolf management authority, wolf and elk management could be more fully integrated if done in an ecological manner that also assures that wolves do not fall below recovery goals that would risk relisting. Management Plans for individual EMUs consider the likelihood of wolf/other predator impacts within their goals, objectives, and strategies.

   Montana has Management Plans for Black Bears (1994), Mountain Lions (1996) and Grizzly Bear in Southwestern Montana (2002). A Management Plan for grizzly bears in the rest of Montana is being developed. These Management Plans will guide FWP management of these species.

   Additionally, more information is necessary to integrate wolf and ungulate management. Montana has ongoing research studies on: 1.) The Assessment of Wolf-Ungulate Interactions and Trends Within the Greater Yellowstone Ecosystem and Associated Areas of Southwestern Montana. This study is a cooperative study among FWP, Montana State University (primarily), The National Park Service – Yellowstone National Park, the USFWS, and private landowners. This study will assess the impacts of wolf predation on ungulate (primarily elk) populations in a variety of habitats/environments as wolf and ungulate populations change over time. 2.) An assessment of population survey techniques and trends in lion populations in the Garnet Mountains that also includes monitoring of population trends for elk, mule deer and whitetail deer over the same corresponding period. A graduate student from the University of

Montana is investigating elk calf mortality rates and causes in the same study area. 3.) Another project is focused on the assessment of black bear harvest rates and population demographics in the Swan Valley as well as selected satellite study areas located across the state. The Garnet Mountains have been prioritized for deployment of the DNA technique in the summer of 2003 to provide estimates of black bear densities as they may relate to #2 above.

2. Regulating/changing the hunter outfitting industry.

   This issue is outside the legal authority of actions by FWP or the FWP Commission. The Montana Department of Labor and Industry - Business Standards Division – Montana Board of Outfitters (37-47-201, MCA) regulates Montana outfitters. The Draft revised Elk Management Plan considers the impacts and influences of outfitted hunting in Montana on elk management, however.

3. Fee/leased hunting on private lands and purchases of "hunting ranches".

   Commercial activities on private lands are outside the legal authority of actions by FWP or the FWP Commission. The Draft revised Elk Management Plan considers the impacts and influences of fee/leased hunting and purchases of "hunting ranches" on elk management, however.

4. Property/real estate tax law changes for private lands with fee/leased hunting or "hunting ranches".

   Tax law changes are outside the legal authority of actions by FWP or the FWP Commission.

5. Regulation of ATVs and motorized access/ improved access for older hunters.

   FWP and the FWP Commission can regulate ATVs and motorized access on FWP State Wildlife Management areas or other FWP fee title properties. FWP can make rules regarding the use or non-use of motor vehicles while hunting or for game retrieval on state or private lands, but not federal lands (MCA, 87-3-125). FWP rules allow for some off-road retrieval, however, private landowner or DNRC rules that are more restrictive supercede FWP rules (MCA, 87-3-125). FWP can make recommendations to private landowners and public land management agencies for motorized access options that might affect elk and elk hunting. However, these landowners and land managers, not FWP, are the legal authorities for any rules/regulations that are imposed. FWP can likewise provide educational materials focused on the responsible and ethical use of ATV's during big game hunting seasons.

   The public is evenly split on the issue of increased/decreased motorized access for hunting and retrieval of harvested elk. Also, FWP believes that in most cases, undesired effects would offset any benefits achieved by possible increased harvest

of antlerless elk resulting from increased motorized access. Undesired effects would include increased harvest of bulls and redistribution of elk to "refuge" areas on private lands and more inaccessible areas of public lands. Therefore, FWP does not propose changes in motorized access in the revised Elk Management Plan.

Average age of elk hunters increased from 1988 to 1998, but remained stable from 1998 to 2002. FWP does not propose changes that would specifically increase ease of access or retrieval for older hunters in the revised Elk Management Plan (proposed action). Existing programs and regulations encourage recruitment of young hunters.

6. Land management (including access) by Federal agencies, Montana Department of Natural Resources – State Lands (DNRC), and private landowners.

   FWP and the FWP Commission have no legal authority over land management decisions by Federal agencies, Montana Department of Natural Resources – State Lands, and private landowners. FWP can make recommendations to or negotiate agreements with private landowners and public land management agencies regarding management activities and options such as public access, grazing of domestic livestock, logging, mining, etc. that might affect elk and elk hunting. However, these landowners, not FWP, are the legal authorities for any regulations that are imposed and they may accept, reject, or modify recommendations by FWP. FWP presents it's general goals and strategies relative to management of elk habitat in the Draft revised Elk Management Plan. Specific goals and strategies presented in individual Elk Management Unit (EMU) Plans indicate likely FWP recommendations relative to various management and development activities. FWP will work with all landowners/managers to improve hunter access to elk that will help achieve management objectives under either Alternative.

CHAPTER 2 – ALTERNATIVES

This Chapter describes the alternatives and compares the alternatives by summarizing the environmental consequences. The alternatives were designed through scoping, development of issues, and consultation with a variety of specialists. In addition, compliance with mandates from the Montana Legislature and FWP Commission policy and guidance helped shape alternatives. In this chapter, the No Action Alternative and the Proposed Action Alternative are described. Then, based on information in Chapter 3 – Affected Environment and the predicted effect of alternatives in Chapter 4 – Environmental Consequences, this chapter presents the predicted results of the proposed action and predicted effects of both alternatives on the quality of the human environment in summarized, tabular form, providing a basis of choice between Alternatives for the public and the decision maker. This chapter also discusses potential alternatives raised through the process, but not selected and the reasons for rejecting them as alternatives.

ALTERNATIVE A – CONTINUE MANAGEMENT UNDER THE 1992 ELK PLAN (NO ACTION)

This alternative would maintain the current programs and activities for managing and conserving elk as listed in the updated 1992 Montana Elk Management Plan. Most new actions described in the Draft revised Montana Elk Management Plan would not be adopted under this alternative. Adaptive Harvest Management (AHM) would not be adopted. This would mean that recommended pre-planned Regulation Packages at pre-planned population "trigger" levels would not be adopted. "Automatic" mitigation resulting from changes in harvest regulations at specific elk population "trigger levels" would not occur. Most proposals for enhanced monitoring of elk populations would not be adopted. Reaching and maintaining elk populations at objective levels would be less likely to occur under the No Action Alternative.

Provisions of the 1992 Elk Management Plan call for annual to bi-annual updating of elk population objectives, EMU boundaries, or other factors as necessary. As part of this process, and in preparation for the proposed action (AHM), much consultation with the entire spectrum of the affected public has already occurred in the setting of elk population objectives for the proposed action (Alternative B). Therefore, depending on further public comment, it is likely that population objectives in the Draft revised Montana Elk Management Plan would also apply to the No Action Alternative (Alternative A).

Pre-planned hunting regulation packages to respond to significant deviations from objectives would not occur under the No Action Alternative. Hunting regulation recommendations would continue to be formulated annually, incrementally, and "unpredictably" for individual hunting districts with limited inter-Regional consultation under the No Action Alternative. Incremental regulation changes would be less likely to bring elk populations to objectives or would do so in a less timely manner.

Similarly, plans to improve monitoring/measuring elk populations would not occur under Alternative A and improvements in detecting deviation from population objectives would not occur.

The refinement and redrawing of Montana's current 35 Elk Management Units (EMUs) to 44 new EMUs, covering the entire state rather than that of outdated elk distribution would occur for the No Action Alternative as part of the annual/bi-annual updating process.

Under the No Action Alternative (A), FWP would continue to use all available methods and design new methods to improve hunter access to elk. FWP would continue to address game damage in accord with the official Game Damage Policy. FWP would continue to address the Brucellosis issue through the Montana Brucellosis Management Plan and would address Chronic Wasting disease (CWD) through a CWD Management Plan being prepared. FWP would continue to be a strong advocate for maintaining and enhancing public and private elk habitat condition and productivity under the No Action alternative. Similarly, FWP would continue to recommend against or ask for mitigating measures of habitat manipulations that harm elk habitat or make elk management more difficult.

If the No Action alternative were adopted, it is less likely that many elk populations would be reduced to objective levels, especially in a timely manner. This could result in continuing/increasing "costs" to some private landowners because of use of "private" forage by higher numbers of elk than projected by implementation of the proposed action. However, if reductions in elk numbers did not occur under the No Action alternative, a higher base population of elk would provide more elk annually for hunters to harvest, if they were able to access them. If, at some point, the No Action alternative resulted in elk populations in some areas increasing beyond the capacity of the habitat to support them, possible damage to the vegetation, soil, and water could occur. Any resulting "die-off" of elk would eventually (cumulative effect) result in fewer numbers of elk for hunters both in the near term and long-term (if productivity of the habitat was reduced). Similarly, in areas where elk populations were below objectives, recovery to objective level might be slower under the No Action Alternative.

Under the No Action alternative, no improvements in the accuracy and reliability of measurement of elk population parameters would occur as requested by the public. However, improved and timely reporting of results of surveys as currently accomplished would occur as mandated by SB 209.

Because AHM would not be adopted under the No Action Alternative, the opportunity for learning and adapting provided by the feedback between disciplined, substantial regulation changes and elk population numbers/ratios measurement would not occur.

ALTERNATIVE B – ADAPTIVE HARVEST MANAGEMENT (The Proposed Action)

In the Proposed Action Alternative (B), FWP proposes to adopt Adaptive Harvest Management (AHM) for elk. At the Elk Management Unit (EMU) level, this includes specific number objectives for indicators of elk population level (number counted during aerial surveys), a set of hunting regulation packages (Standard, Liberal, and Restrictive) with population measurement criteria (triggers) for moving from one package to another when elk populations are at, above, or below objectives, and a monitoring program that includes specific trend areas, methods, and parameters to be measured. This approach directly ties recommended hunting regulation packages to results of monitoring data for elk population trend counts, sex/age ratios, and other factors. Regulation Packages in AHM are designed to be substantially different and produce measurable changes in the population. Thus, when the elk population is above or below it's objective range; the Liberal or Restrictive Regulation Package is designed to quickly return the population to its objective range. The Standard Regulation Package, employed when the population is within objective range, usually contains regulation(s) that provide more incremental annual changes (small adjustments) to maintain the population within objective range.

The AHM process is "self-mitigating". That is, when implementation of a Regulation Package or natural factors result in measurable changes to elk population parameters that place it outside the objective range, the AHM process calls for change to a pre-designed Regulation Package that will move the population back to the objective range. A Standard Regulation Package is pre-designed to maintain the population within its objective range once the objective range is achieved. Thus, implementation of the proposed action should maintain the elk population within or near the objective range for longer periods of time.

Under the proposed action (Alternative B – Adaptive Harvest Management) some improvements in elk population monitoring (measurement) techniques are proposed for immediate implementation and additional improvements are proposed and prioritized should enhanced budgets allow. Improved elk population monitoring will allow more timely detection of elk numbers or ratios that are outside the objective range. It will also provide more confidence that the measurements are accurate.

Additionally, EMU boundaries have been refined and expanded to include the entire state. Including the entire state within EMUs should help prevent elk populations from developing in primarily agricultural areas where game damage considerations outweigh the benefits of expanded elk distribution.

Revisions of individual EMU plans in the proposed action consider management challenges that have surfaced since 1992 or not been solved since that time, list accomplishments since 1992, and address issues raised in public scoping. These issues include game damage and hunter access.

As part of the proposed action (Alternative B), FWP will implement a public information program to provide the public timely annual information on the status of elk populations throughout Montana. This information along with the Regulation Packages and population measurement criteria for switching among Regulation Packages presented in the Elk Plan will provide the public a more predictable expectation of likely hunting season regulation recommendations by FWP and the justification for those recommendations.

PROCESS USED TO DEVELOP ALTERNATIVES

Waterfowl have been successfully managed under an Adaptive Harvest Management Program since 1995 (U. S. Fish and Wildlife Service, 2004). The FWP Commission adopted Montana's Adaptive Harvest Management plan for mule deer on 15 January 2001 (Wildlife Division, FWP, 2001). Although it is early for a thorough evaluation, early indications are that this management approach has improved mule deer management in Montana. Based on this, the FWP Commission, FWP staff, and field biologists believed that a similar approach for elk was warranted to more effectively achieve population objectives for elk. FWP and the FWP Commission made the decision to incorporate AHM into a revision of Montana's Elk Management Plan (the proposed action, Alternative B).

Any Alternative developed should have the potential of meeting FWPs objective to bring elk population parameters within objective range within a relatively short time and address elk management statewide. No complete "programmatic" Alternatives that would potentially achieve FWPs elk management objectives were developed from public scoping. During the scoping process, FWP examined issues and comments by the public for potential Alternatives to the proposed action for elk management. Public comment defined the issues well and proposed some solutions/strategies for management problems. However, solutions/strategies tended to be site specific and not "programmatic", or organized. Some suggested solutions/strategies by the public for regulation types, access enhancements, and improved monitoring were adopted in some form within the proposed action (Alternative B).

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Although no fully "programmatic" Alternatives were developed from public scoping, several "partial" solutions/alternatives were proposed. Below we explain why they were eliminated as Alternatives and/or as modifications to the proposed action.

1) Quota-based cow elk harvest.

   A few members of the public proposed a quota-based cow (antlerless) harvest in problem areas that would maintain an open season until an annual harvest quota for antlerless elk was met (for example, http://animalrangeextension.montana.edu/Articles/Beef/Q&A2003/quota.htm). Management by quota is a valid method of management with

advantages and disadvantages. A quota-based system is part of the Regulation Packages in one EMU and an option in another in the proposed action (Alternative B). If proposed Regulation Packages do not achieve their objectives, quota-based or other regulation types not currently proposed could be applied and tested in future updates to the AHM system. FWP believes that the either-sex regulation in many proposed Regulation Packages along with the option of season extensions will provide the necessary increased harvest of antlerless elk without some of the uncertainties for hunters, landowners, and outfitters about season length and the additional administrative costs in money and time involved with a quota-based system. FWP believes that the proposed action (AHM, Alternative B) addresses the broader statewide objectives and that quota-based management is best more narrowly applied (perhaps in future revisions, if necessary). FWP did not consider the quota-based system to be a full "Programmatic" Alternative and it was not considered further.

2) "Montana Wildlife Partnership Program"

Some members of the Montana Stockgrowers Association proposed a program (the "Montana Wildlife Partnership Program") similar to Colorado's "Ranching For Wildlife" and Utah's "Cooperative Wildlife Management Unit Program" during 2002, shortly before scoping for the revision of the Elk Management Plan began. Some goals of the Program were to provide resident hunters access to lands previously closed (25% of approved male and female permits), achieve some antlerless harvest on those lands, improve wildlife habitat, and allow landowners to receive "authorization letters" for 75% of the male and female permits to sell to their "private" hunters. Other goals, criteria, restrictions, special season lengths, etc. were also proposed (for example, see http://animalrangeextension.montana.edu/Articles/Wildlife/Mt-wildlife-partner.htm). Because the timing of release of the proposal, the call for scoping comments for the revision of the Elk Management Plan, and the convening of the 2003 Montana Legislature closely coincided, much interest was generated. Scoping comments included 2 members of the public supporting the proposal and 52 opposing the proposal (see Appendix A).

Characteristics and results of the Colorado and Utah programs are presented and analyzed in Chapter 3 – Affected Environment. This analysis indicated that expected results of a program similar to those in Colorado and Utah would provide minor contributions to desired increases in public access and antlerless elk harvest. It would also provide benefits to few landowners compared to the number benefiting from the existing Block Management Program. The proposal, or a similar one with modifications, would not be a "Programmatic" Alternative that addressed elk management problems in a broader statewide context.

Implementation of the "Montana Wildlife Partnership Program" as even a portion of an Alternative would require legislation for creation of a special elk license class, raises critical questions regarding the "privatization" of wildlife, and appears to be opposed by the majority of the responding public. Therefore, this program was not considered further.

SUMMARY COMPARISON OF ALTERNATIVES FOR PREDICTED ACHIEVEMENT OF FWP OBJECTIVES AND PREDICTED ENVIRONMENTAL EFFECTS

Table 1. Summary comparison of Alternatives for predicted achievement of FWP objectives.

Objective	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
New strategies to achieve elk population objectives	New elk population objectives adopted. Set elk harvest regulations by the annual rule process without pre-planned Regulation Packages. Unlikely to achieve elk objectives based on past history.	Adopt Adaptive Harvest Management with new elk population objectives and enhanced population monitoring. Link monitoring data and elk objectives with Standard, Liberal, and Restrictive Regulation Packages to achieve those objectives.
Improved monitoring of elk population trend and sex/age ratios	No change from current monitoring.	Proposed increased expenditures for improved and increased monitoring.
Improved hunter access to private lands	Maintain current hunter access Programs.	Potential increased access if landowners are confident AHM regulations will achieve objectives of reduced elk in some areas.
Improved public information	Comply with requirements of SB 209. Without enhanced monitoring, information may be less accurate and reliable than under Alternative B.	Annual public access to aerial trend count/ratio information and with enhanced monitoring, more accurate, reliable, and timely information.

Table 2. Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Soil, Water, and Vegetation	Less likelihood that elk numbers would be reduced to objective level in a timely manner in some areas. There would be potential for minor and temporary direct and cumulative impacts to vegetation health and thereby soil and water.	Elk numbers would be reduced in some local areas and maintained or raised to objective level in other areas. This would maintain elk numbers below the level of possible impact to vegetation and thereby soil and water.
Fish and Wildlife		
Elk numbers and population composition	Elk numbers in local areas would likely decrease only slowly, remain above objective, or continue to increase until severe winter weather, or incremental regulation changes reduced numbers.	Elk numbers are likely to be reduced in local areas that are above objective and increase where they are below objective. Proposed decreases in counted elk total 16,328 where they are above objective and 4,552 where they are below objective. The proposed net statewide decrease in counted elk totaling 11,776 may equal about 17,400 actual elk.
	No changes in post-season bull are expected.	No, or minor changes in post-season bull:100 cow ratios are expected. Temporary increases may occur when antlerless elk are reduced but this possible increase would not be sustained.
	Calf:100 cow ratios in some areas could decline slightly during any period that elk numbers increase further.	No or minor changes in post-season calf:100 cow ratios are expected.

Table 2 (continued). Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Fish and Wildlife (cont.)		
Elk numbers and population composition (cont.)	Elk harvest could increase to an unknown degree if numbers of elk increase without implementation of AHM. This increase would not be sustained if numbers increase to levels that reduce calf survival or if severe winters occur. The cumulative effect of the No Action Alternative could be small annual increases in elk numbers and harvest until severe winters reduce elk numbers, at which time elk numbers and harvest would decline by an unknown amount.	Short-term antlerless harvest would increase. To reach objective level in 2 years, statewide annual harvest would have to increase by about 7,500 antlerless elk per year. To reach objective in 3 years, statewide annual harvest would have to increase by about 6,000 elk per year. The cumulative effect of reducing elk populations to objective level would be an estimated annual reduction in reported statewide harvest of 1,350 elk (675 bulls and 675 antlerless) after objectives were reached compared to 1999-2003 averages.
Land Use	Until severe winters reduce elk numbers, increased competition for forage with livestock is likely to occur in local areas. This increased competition could reduce profitability of the land for some local livestock producers. The Gallatin Closed Area would not be opened for elk hunting for 5 either-sex elk permits.	Elk competition for forage with livestock is likely to be reduced in local areas (about 8,700 cattle equivalent AUs statewide). This might slightly increase profitability of the land for some local livestock operators. The Gallatin Closed Area would be renamed the Gallatin Special Management Area and opened to hunting for 5 either-sex elk permits.

Table 2 (continued). Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Community Impacts	If elk numbers remained high or increased temporarily in local areas, income to some livestock producers could decline slightly.	The proposed reduction in local elk numbers (totaling about 8,700 cattle equivalent AUs statewide), could result in less forage competition with livestock. Locally, this could result in a minor increase in income to livestock producers.
	No change in license fee income to FWP is expected.	License fee income to FWP is not expected to be affected, or change only slightly.
	No increase in FWP expenditures for aerial monitoring of elk populations would occur.	Should extra funds become available, FWP would expend about $1,000,000 over 10-12 years to develop aerial observability indexes for elk in habitats where this information is unavailable. Additionally, about $300,000 more annually would be expended to improve aerial surveys currently conducted and add new survey areas.
	Because similar regulations could be implemented under Alternative A under the annual rule process, similar potential impacts could occur as in Alternative B. This regulation may be less likely to be adopted under the annual rule process. Total income to outfitters would not change, but temporary shifting of income among outfitters could occur.	If antlerless only seasons (or portions of seasons) were used in some local areas to reduce elk numbers, income to some local outfitters or landowner/outfitters could be temporarily reduced. A corresponding temporary increase in bull numbers and age as a result of a period of no bull hunting could temporarily increase the competitive advantage and income for the same outfitters after Standard Regulations were reinstated.

Table 2 (continued). Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Community Impacts (cont.)	No impact to income of commercial meat processors is expected.	If elk numbers are reduced to objective level, a potential temporary and minor increase in income to commercial meat processors could occur (15,000-18,000 more elk shot over 2-3 years). This would be offset by a minor cumulative decrease in income at objective levels for elk (1,350 fewer elk shot annually)
Taxes	To the extent that minor and/or temporary decreases in income to livestock producers occurred because of no, or a slower reduction in elk numbers, an even more minor reduction in tax income to Montana could occur.	To the extent that minor and temporary changes in income to livestock producers, outfitters, or commercial meat processors occurred as discussed in preceding sections, an even more minor and temporary change in tax income to Montana could occur.
Aesthetics/Recreation	There will likely also be increased opportunities for increased antlerless harvest in more areas under Alternative A. Harvest success rate for elk is unlikely to change from current conditions.	Increased opportunities for harvest of antlerless elk will occur in the short-term in some areas. This opportunity will occur on the A-5 license without the necessity to apply for special permits and because of increased use of A-9/B-12 licenses (B-tag for 2nd antlerless elk). If objectives for elk are met, the cumulative effect would be that fewer total elk (est. 17,400 statewide) would be available for harvest in some areas. This would slightly reduce the harvest success rate in some areas. Expected declines would be greatest in EMUs currently most over objective such as the Missouri River Breaks, Crazy Mountains,

Table 2 (continued). Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Aesthetics/Recreation (cont.)		Bridger, Gravelly-Snowcrest, Garnet, east and south side of Bob Marshall, and Snowy EMUs. In most cases, reductions would not be below 1992 levels.
	The requirement for archers to apply for unlimited and limited permits (should they be recommended) would not be implemented in new areas. Their recreational choices would remain unchanged	If bull:100 cow ratios drop below objective such that unlimited or limited permits are called for by the Restrictive Regulation Package, archers will also be required to apply for those permits. This would limit their ability to hunt statewide as compared to current conditions (Alternative A). Because of the "10% rule" on special permits for non-residents, this would likely affect the recreational choices of non-resident archers the most.
Additional Aspects of Issues not Presented as Part of Analysis by Resource		
Access	Although increased emphasis on hunter access will occur, positive results may be less likely without the confidence of landowners in a disciplined Program of Regulation Packages.	It is possible that adoption of a consistent, predictable, and disciplined Program of Regulation Packages designed to reduce to and maintain elk at objective level (increased antlerless harvest and reductions in mainly private land areas) will increase access for elk hunters on some private lands.

Table 2 (continued). Summary comparison of Alternatives for predicted environmental effects.

Resources/Issues	Alternative A (No Action)	Alternative B (Adaptive Harvest Management)
Additional Aspects of Issues not Presented as Part of Analysis by Resource (cont.)		
Hunting Regulations/Strategies	Management responses to changes in elk population parameters are likely to be slower than under Alternative B because of slower detection of changes and lack of pre-prepared Regulation Packages.	Management responses and changes in elk numbers in either direction are likely to occur more rapidly under the AHM Program (Alternative B) than under current conditions (Alternative A). Regulation changes are more immediately "self-correcting" under AHM when monitoring detects significant changes in elk population parameters than compared to the current conditions.
Chronic Wasting Disease/Brucellosis	The risk of spread of disease could increase slightly if elk numbers are not reduced in some local areas.	There should be a slightly reduced risk of spread of disease if elk numbers are reduced in local areas.
Information/Data Issues	Improvements in accuracy and reliability of elk population trend and sex/ age ratios will not occur. Improvements in presentation of information to the public on elk population trends will occur, but information will not be as accurate or reliable as under Alternative B.	Improved accuracy and reliability in estimates of elk population trend and sex and age ratios are expected. Improvements in timely presentation of information to the public on elk population trend are proposed.

CHAPTER 3 - AFFECTED ENVIRONMENT

This Chapter summarizes information about the affected environment in which the proposed action will occur. For more detailed analysis and discussion, refer to the Draft revised Montana Elk Management Plan. Organization of the information summary will generally be by issue category, but because of interrelationships among issues, some mixing or repetition of information by issue will occur.

LOCATION

The proposed action will take place within/affect the entire state of Montana. However, Montana hunting districts do not include Indian Reservations, National Parks, or the Sun River Game Preserve. Elk numbers and distribution are concentrated in western and central Montana (Figure 1), with perhaps 50% of elk numbers in southwestern Montana. Any changes resulting from proposed management actions will likely occur relatively proportional to elk numbers and distribution. However, one of the proposed actions is to include all of Montana in Elk Management Units (Figure 2.), including areas with no elk currently. Thus, the scope of the proposed Plan action is the entire state of Montana.

LEGAL STATUS OF ELK IN MONTANA

Elk are designated a game animal in Montana (MCA, 87-2-101). FWP has statutory authority to supervise and exclusive power to spend for the protection, preservation, management, and propagation of wildlife, fish, game (including elk), fur-bearing animals, waterfowl, and game and non-game birds of the state (MCA, 87-1-201). Through the FWP Commission, this includes regulation of harvest of elk (MCA, 87-1-301). FWP is also mandated to manage elk (and other species) “in a manner that prevents the need for listing under 87-5-107 or under the federal Endangered Species Act, 16 U.S.C. 1531, et seq.”, [MCA, 87-1-201 (9)(i)].

Figure 1. Distribution of elk in Montana during 1999.

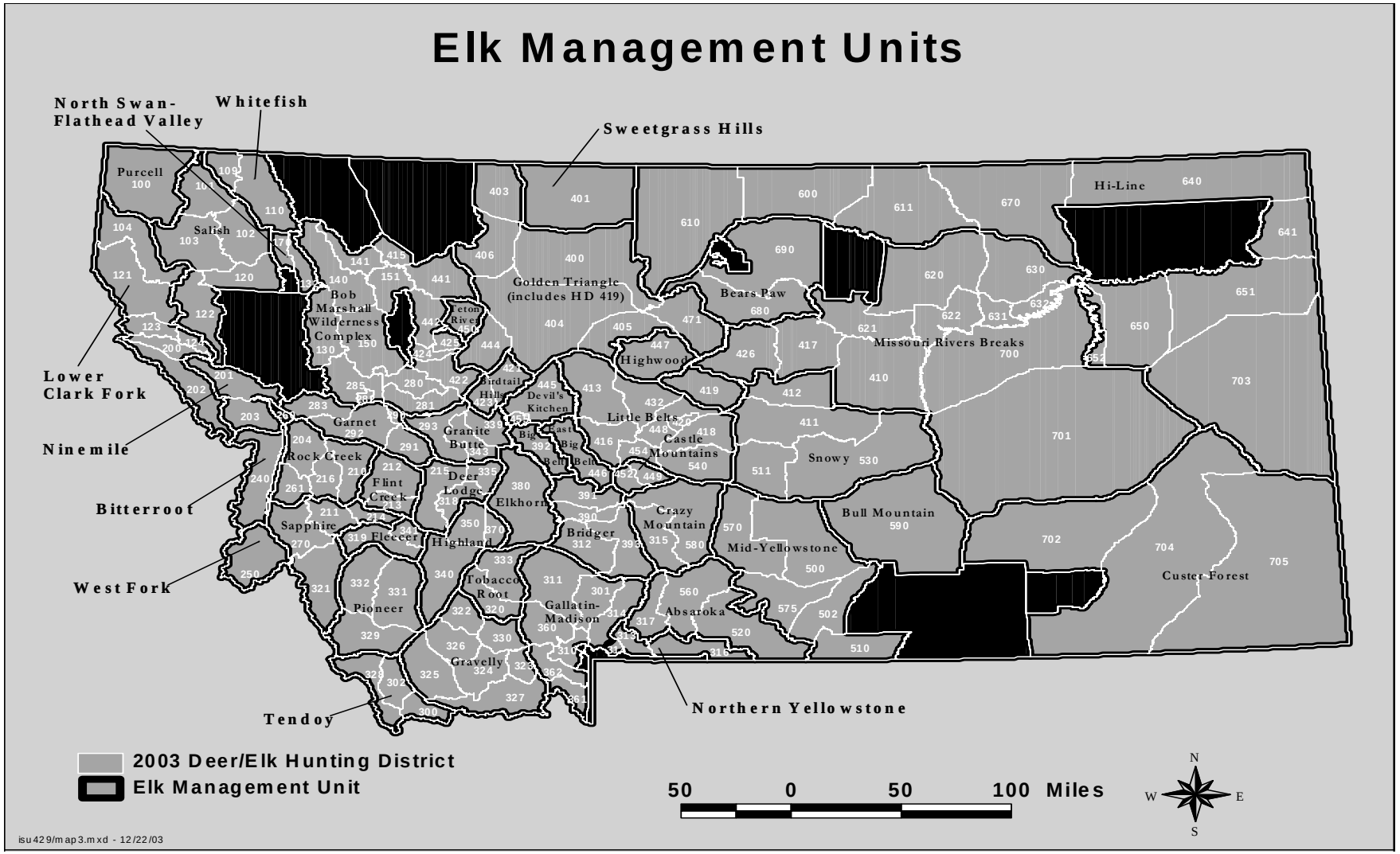

Figure 2. Location of Elk Management Units (EMUs) and elk hunting districts in Montana

ELK POPULATION NUMBERS ISSUES

This issue is fundamental to the proposed action of revising the Elk Management Plan to incorporate aspects of Adaptive Harvest Management (AHM). Setting population objectives is probably the foremost element in AHM. Further, comment indicated that objectives could/should differ for antlered and antlerless elk. Public comment indicated some confusion about where and when FWP considered elk numbers to be above objectives and how those objectives were set. The Private Lands/Public Wildlife Advisory Council (PL/PW AC) indicated that especially in problem areas, community-based groups should participate in setting objectives. All other issues were related to the issue of elk population numbers.

History of Elk in Montana

Elk were widely distributed across North America prior to the time Europeans first arrived (Bryant and Maser 1982). In Montana, elk were distributed throughout the lengths of the Missouri and Yellowstone River valleys at the time of the Lewis and Clark expedition in 1804 and 1805. However, observations of Lewis and Clark extended little beyond the vicinity of the major river valleys. By the early 1800s, subsistence, market, and hide hunting had almost eliminated elk east of the Mississippi River. This hunting continued to reduce elk in the western United States, and elk were gone from eastern Montana by the mid-1880s and were also heavily impacted in western Montana.

Elk probably reached a low point in numbers in North America about 1900-1910. In 1910, it was estimated that fewer than 50,000 elk existed in North America. About half were associated with Yellowstone National Park (YNP), Jackson Hole, and the surrounding areas. The establishment of YNP in 1872 and its remoteness was a major factor in preserving elk in North America.

During the late teens and 1920s, local and national sentiment for protecting and expanding existing elk herds became stronger. Many local sportsmen's clubs were formed with a prime purpose of preserving elk. In 1910, the first transplant of elk from YNP was made to Fleecer Mountain near Butte, Montana. During the period from 1910 to 1940, a total of 1,753 elk from YNP, Jackson Hole, and the National Bison Range was transplanted to 31 sites in the National Forests of Montana (West 1941). In 1913, the Sun River Game Preserve was established and hunting season closures were established elsewhere.

In 1922, about 13,000 elk were estimated to occur in the National Forests of Montana and northern Idaho, exclusive of YNP (West 1941). Probably about 7,500-8,000 of these elk were in Montana. In 1928, an estimated 10,900 elk were in Montana (Raymer 1930). By 1940, the National Forests of Montana, excluding YNP, were estimated to contain 22,000 elk (West 1941). All these estimates are subject to question, but give a general, relative sense of elk numbers in Montana early in the 20th century.

The era of biological management began in 1940 according to Picton (1991). At that time there were only 7 major native elk herds in Montana and scattered elk at various transplant sites (West 1941). The first State Game Manager position was created in 1940, biologists began to be hired, and the first acquisition of land by the State for elk winter range also occurred in 1940.

Transplantation of elk continued, and from 1941 to 1970 an additional 4,140 elk were transplanted into Montana, mostly from YNP. As a result of these and earlier transplants and natural increases in distribution of existing elk, elk began to fill in much of their former habitat, including some areas of eastern Montana. By 1969, 10 Wildlife Management Areas (WMAs) totaling 63,000 acres had been purchased by the State for elk winter range. In 2003, 21 WMAs totaling 306,083 acres support about 17,500 wintering elk. Today, all timbered mountainous areas of western and central Montana contain elk (Figure 1). Additionally, huntable elk herds exist in isolated mountain ranges and timbered areas of eastern Montana (Figure 1). As an example, about 160 elk were transplanted into the Missouri River Breaks in 1951 and 1952. Today, that population totals over 5,000 elk.

Statewide, post-season elk numbers increased from an estimated 8,000 in 1922 to 22,000 in 1940, 40,000 in 1951, 55,000 in 1978, and an estimated 130,000 to 160,000 today (Hamlin, unpublished).

Estimating Elk Population Parameters (including numbers)

Attempting to estimate wildlife population numbers is one of the most difficult and expensive aspects of wildlife management. Seldom, except for special research projects in certain areas, do wildlife agencies attempt other than very broad estimates of wildlife numbers. Rather, for important areas and populations, trend counts are conducted that attempt to determine the **relative** change in population numbers between years. It is known that these counts are an underestimate of total numbers, but by trying to conduct the counts under the same conditions every year (or other period of count), we hope to determine if the population is up, down or stable relative to the past year or trend count objective. By comparing these trend counts to population goals, we determine direction of population trend and whether the hunting regulation has been effective in maintaining the population goal or turning the population in the direction of that goal. If the regulation has been ineffective over a several year period, a new regulation should be tested. Recommended new regulations have not always been acceptable to the public and have not been implemented. The use of harvest estimates for prior years, an index of recruitment of new elk to the population (calf:100 cow ratios) and prior and current weather conditions are often used to try and predict future direction of the population trend. For example, a low level of calf recruitment (low calf:100 cow ratios) and heavy harvest the prior year indicates the population will likely decrease or be stable the next year. Conversely, high calf recruitment coupled with low harvests indicate the population will likely increase the next year. These predictions may also lead to recommendations for hunting regulation changes.

Trend counts are usually conducted by aerial survey, either by helicopter or fixed-wing aircraft, although in some areas counts may be conducted from the ground. Most flights are conducted on relatively open winter ranges. For parts of thickly timbered northwest Montana, aerial census or trend count flights are impractical. Data on calf:100 cow and bull:100 cow ratios may be recorded at the same time as counts on aerial surveys. However, for some areas, ratios may be determined by surveys from the ground, separate from aerial counts. In most areas, bulls counted are separated into "spikes" (yearlings) and brow-tined bulls (BTB). In some other areas, an attempt may be made to further separate BTB into 2-year-olds and bulls 3-years and older. Not all areas of the state containing elk can be surveyed. However, almost all significant winter concentrations are surveyed, possibly accounting for about 60-70% of the elk in Montana. For most important areas, trend counts are conducted every year during early to late winter or early spring. In some areas, due to budget constraints and the availability of pilots, trend counts may be conducted every 2 or 3 years. Even where trend count flights are attempted every year, a variety of factors may result in flights not being completed.

Budget constraints, the lack of qualified pilots, the lack of appropriate and safe weather conditions, competition with flights for other species such as deer at the same time, and competition for pilots' time with other, more lucrative projects all make conducting trend flights and especially upgrading our efforts difficult. Thus, even with increased money for surveys, improved aerial surveys for elk or other species is not guaranteed.

Limited information is available on estimating total population size from counts obtained on trend count aerial surveys. For heavily timber habitat near Hungry Horse Reservoir in northwestern Montana, an average of 30.5% of marked elk known to be present (range 19-45%) were observed during fixed-wing aerial trend counts. For the same area, counts by helicopter averaged 33% (range 22-46%) of marked elk observed (Casey and Malta 1993, Vore and Malta 1994). For a similarly heavily timbered area in HD 200, observability by helicopter averaged 35% (range 25-45%) of marked elk present (Henderson et al. 1993). Thus, in relatively heavily timbered elk winter ranges, our aerial trend counts probably average about 30-35% of the "true" numbers of elk present. However, variation by time, year and counting conditions is substantial, ranging from 19-46% observability. For a more moderately timbered winter range in HD 123, an average of 46% (range 25-67%) of marked elk present were observed during aerial trend surveys by helicopter (Henderson et al. 1993). Percent of "true" numbers observed during aerial trend surveys on open, mostly non-timbered winter ranges was higher. For the National Bison Range, about 90% of elk present were observed (Unsworth et al. 1990). For the northern range of Yellowstone, an average 74% (range 53-91%) of elk estimated to be present were observed during fixed-wing aerial trend surveys (Singer et al. 1997). For flights with good observing conditions only, the average observability was 80%. Fixed-wing aerial trend surveys for elk in the Gravelly-Snowcrest Mountains averaged 71% (range 56-89%) of elk estimated to be present observed (Hamlin and Ross 2002). The averages there were 80% for flights with good observation conditions and 60% for flights with poor observation conditions.

From the above, there is some information to generally categorize correction factors for trend counts in some areas of Montana. However, given the variability observed, even within areas, annual estimates of total population would only be 'ballpark" estimates. Determining significant changes among years would be problematic. Increasing the rigor of elk census flights and adding more areas where we would determine observability estimates over a range of conditions similar to the mule deer AHM program would be necessary to attempt estimates of "true" elk population numbers. Based on costs to develop the mule deer AHM Program, an estimated $1,000,000 or more would be necessary for developmental costs to establish observability estimates for additional areas (K. Hamlin memo to D. Childress, 01-21-03). An estimated additional $300,000 more than is currently expended (a little more than $1.8 million in FY 2001-2002) would be necessary annually to fly increased numbers of aerial surveys. This would also increase the number of biologist days for flying and analysis by at least 280 days annually. As stated earlier, even given the money, it is unlikely that there are enough qualified pilots and good flying weather available during the census window of time (late December – mid-April) to totally accomplish a program for elk similar to that for mule deer.

Population objectives listed under individual EMU plans are for number of elk counted on trend counts, **NOT** for an estimated total population. At this stage of our knowledge and logistic and financial capabilities, estimating total elk populations for all EMUs would only introduce more uncertainty than currently exists into elk management in Montana. Use of consistent and rigorously collected trend count information will allow us to determine whether individual elk populations are at, above or below objective level

Establishing Number Objectives for Elk

The public questions how number objectives for elk populations and EMUs are established. For specific EMUs and populations, some believe the number objectives are too low and some believe they are too high. In the 1950s, 1960s and early 1970s, specific number objectives were not set, but a biological based method was used to classify the elk population as too high, too low or "about right" based on forage use transects. After about 30 years, it became apparent that this method was not realistic. Subsequent elk population and forage changes have generally indicated that in many areas elk populations could be sustained at much higher numbers than our assumptions about forage indicated. We have not established alternative forage-based models.

An alternative model based on calf recruitment rates as a surrogate for the forage quantity/quality/nutrition model has also been followed, at least in some areas. The premise behind this model was that recruitment at levels below about 20 calves:100 cows west of the continental divide and 35 calves:100 cows east of the continental divide indicated nutritional deficiencies and overuse of the forage resource. Thus, at observed recruitment below these levels an elk population reduction was indicated to reduce competition for forage. Although in theory this model has potential, in practice, it has not been very predictive. Hindsight has shown that some early periods of low calf recruitment occurred at elk densities a quarter or half of later elk densities with much higher recruitment. Density-independent effects of weather and predation may often

falsely indicate that long-term forage effects have occurred. Another problem with both models mentioned is that the substantial annual variation in forage production obscures potential elk number/forage relationships. Substantial reductions in elk numbers proposed for some areas in this elk plan revision would allow further testing of density effects on calf recruitment.

In practice, elk number objectives have been or will be established by the following processes.

1. The history of long-term trend counts and discussions with landowners on many areas indicate to biologists at what count level and under what conditions agricultural damage complaints become more frequent or excessive. Objectives for number of elk counted will be established below levels of excessive damage problems. For other areas, especially on public lands in northwestern Montana, elk numbers are below levels sustained in the past. There, FWP objectives for elk numbers may be above current levels.
2. Increasingly, in problem areas, Community Working Groups are formed to help all stakeholders come to consensus about objectives for elk numbers and potential solutions to elk management problems in the area.
3. FWP has come to recognize that in some areas and for some elk populations, demand for antlerless harvest with current regulations is less than is necessary to reduce the elk population from current levels to the objective. A substantially more liberal regulation package than traditionally used may be necessary to reduce the elk populations to objective levels. Once objective levels are met, regulations can be modified to maintain stable populations under average environmental conditions. These objective levels may be lower than ecological potential and driven more by sociological tolerance and antlerless harvest demand.
4. Elk populations in portions of some EMUs may be almost entirely inaccessible to hunters during the general hunting season or accessible to only a few hunters. To avoid over-harvest of accessible elk on public lands or private lands open to hunting, the inaccessible elk may not be included in objective numbers. Trend count number objectives may include only elk normally accessible to general hunting (if they are a distinct segment), though hunter access negotiations will continue. Elk occupying these “refuges” may be separately counted where possible (if they are a distinct segment) and sub-objectives established that could be operative if access negotiations are successful. If significant harvest of these “refuge” elk is possible with special management at some times and locations, they should be included in objective levels.

During winter and spring 2004, FWP biologists contacted many members of the public in various ways to discuss drafts of Elk Management (EMU) objective numbers for elk and proposed regulation packages. Comments received through these discussions were considered in writing the EMU Plans. EMU objectives and regulation packages were discussed at 54 meetings related to the 2004 season-setting process, with 18 Sportspersons Groups, with 7 Community Working Groups, with 45 individual

sportspersons, with 23 outfitters, with 4 landowner/outfitters, and with 288 landowners in elk habitat.

It is apparent in many areas, especially with significant elk use of private land, that the ecological potential for elk numbers is substantially above the numbers sustainable based on landowner tolerance. For these areas, the expectations of private landowners will be an important component in establishing objectives for elk numbers.

Elk Numbers and the Draft revised Elk Management Plan

Recent post-season counts of elk were 98,131 for all EMUs combined (Table 3 and see Table 9, Draft revised Montana Elk Management Plan). Objectives for numbers of elk counted in all EMUs combined total 86,355. The total of 11,776 counted elk over objective (13.6%) is the net result of 12 EMUs with fewer elk counted than the objective, 20 with more elk counted than the objective, 9 that are at or near the objective, and 3 EMUs where the objective is "few" elk. If we use the mid-point of an estimated range for post-season elk numbers in the state (145,000, see earlier), then we recently (2003/2004) counted about 68% of Montana's elk. Thus, by extension, the 11,776 counted elk over objective equals 17,400 estimated total elk above an equivalent estimated objective of 127,600 elk.

HUNTING REGULATIONS/STRATEGIES ISSUES

Perhaps the most common responses to scoping were suggestions for various hunting regulations/strategies to address problems. Also common was the belief that weather conditions play a major role in effect of hunting regulations.

Elk Harvest and Harvest Distribution

Statewide trends in estimated elk harvest in Montana since 1962 (Figure 3) indicate substantial increases in both antlered and antlerless harvest since the early 1980s. The decline in antlerless elk harvest in the mid-1970s (Figure 3) occurred at the same time that conservative deer seasons were implemented after a decline in deer populations (Mackie et al. 1998). Concurrently, in substantial areas of the state, season-long either-sex (ES) regulations for elk were replaced by antlered bull (AB) regulations with limited permits for antlerless elk. This reduction in hunting pressure on antlerless elk likely was the prime cause of increasing elk populations by the early 1980s.The reduction in hunting pressure on antlerless elk also increased hunting pressure and mortality on bull elk, reducing post-season bull:100 cow ratios in some areas. In some areas, this coincided with increased logging and roads that decreased security for bull elk. Excluding the peak in bull elk harvest in 1991, when many migratory bulls from the Northern Yellowstone and Gallatin herds were harvested, bull harvest has recently fluctuated around 8-14,000 annually (Figure 3). However, the recent trend has been down, even considering fluctuations due to weather. Part of this decline is due to recent increases in numbers of hunting districts (HDs) with brow-tined bull (BTB) regulations.

Table 3. Comparison of 1992 and 2004 objectives for counted elk, numbers currently counted, and change to reach objectives.

				2004 Objective an	Increase or decrease (-)
	Number of Elk	1992 Objective	2004 Objective	increase or decrease	in counted elk necessary
Name of EMU	Currently Counted	Numbers	Numbers	(-) from 1992	to reach objective
Purcell	120		300		180
Salish	466		700		234
Whitefish	358		600		242
No.Swan-Flathead Vly		250	few		
Lower Clark Fork	2,829		2,400		-429
Bob Marshall Complex	7,112		5,925		-1,187
Ninemile	1,551	2,000	1,550	-450	-1
Bitterroot	1,016	750	750	0	-266
Garnet	3,279	3,000	2,200	-800	-1,079
Flint Creek	1,384	1,400	1,500	100	116
Rock Creek	3,044	2,200	2,500	300	-544
Sapphire*	5,448	3,550	4,800	1,250	-648
West Fork*	*	*	*	*	*
Deer Lodge	1,749	2,050	2,100	50	351
Granite Butte	2,232	2,000	2,100	100	-132
Fleecer	1,747	1,650	1,475	-175	-272
Pioneer	2,575	2,950	2,950	0	-375
Tendoy	2,641	2,050	2,050	0	-591
Gravelly	9,050	8,250	6,500	-1,750	-2,550
Tobacco Root	1,343	850	1,000	150	-343
Highland	921	1,600	1,600	0	679
Elkhorn	1,787	2,000	2,000	0	213
West Big Belt*	2,360	1,700	2,000	300	-360
Bridger	5,591	2,450	3,550	1,100	-2,041
Gallatin/Madison	11,121		11,200		79
Northern Yellowstone	3,273		4,000		727
Absaroka	2,817		2,650		-167
Crazy Mountains	3,043	1,250	1,975	725	-1,068
East Big Belt*	*	*	*	*	*
Castle Mountains*	*	*	*	*	*
Little Belt*	3,676	3,500	4,225	725	549
Devil's Kitchen	1,237	2,700	2,200	-500	963
Birdtail Hills	848		500		-348
Teton River	94		85		-9
Sweetgrass Hills	343	275	350	75	7
Golden Triangle			few		
Highwood	510	400	550	150	40
Snowy	1,900	1,150	1,100	-50	-800
Mid-Yellowstone	273		445		172
Bull Mountain	1,331		1,050		-281
Bears Paw Mountains	259	75	250	175	-9
Missouri River Breaks	7,553	2,700	4,725	2,025	-2,828
Hi-Line	100		few		
Custer Forest			500		
STATEWIDE	98,131		86,355		-11,776

* Sapphire and West Fork, East and West Big Belt, and Castle and Little Belt EMUs were separated in 2004.

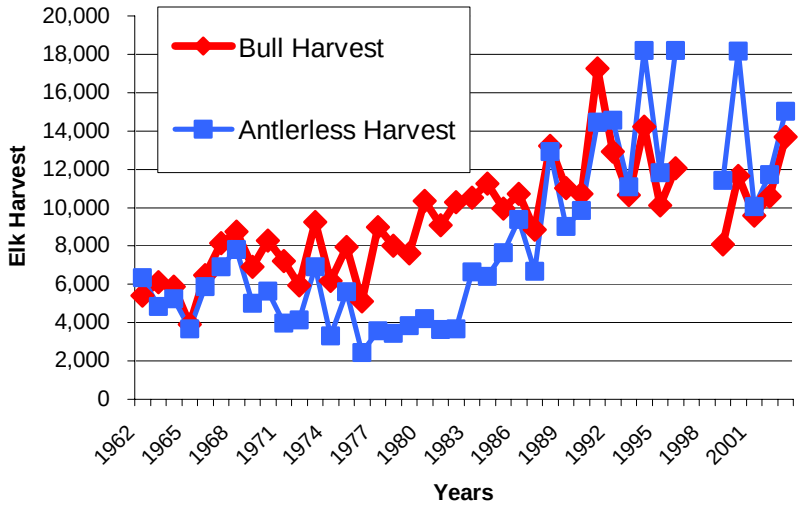

Figure 3. Annual elk harvest in Montana, 1962-2003.

Starting in about 1984, antlerless elk harvest rose to the point that it has exceeded bull harvest each year since 1992. Again, the annual variations in harvest due to weather conditions are evident in the high harvests of 1994, 1996, and 2000. For FWP Administrative Region 3, especially, 1991 was another year in which weather contributed to high harvests of antlerless elk.

Harvest of both antlered and antlerless elk have always been highest in FWP Administrative Region 3 and second highest in Region 2. Recently, however, elk harvest in Region 4 has equaled that of Region 2. Elk harvests have increased in Regions 5, 6, and 7 but have declined in Region 1.

The density distribution of both antlered and antlerless elk harvest is concentrated in southwestern Montana and west-central Montana (Figures 4 and 5).

During 1992, 1993, and 1997, about 65% of elk harvest was on public lands and 35% on private lands. For 1997, the percent of elk killed on public land was 84% in FWP Region1, 61% in Region 2, 73% in Region 3, 49% in Region 4, 37% in Region 5, 76% in Region 6, and 59% in Region 7.

Hunter Numbers and Distribution

Elk hunter numbers have approximately doubled since the 1950s, though they have been relatively stable at about 100,000 hunters on a statewide basis since 1985 (Figure 6). For 1999-2001, resident elk hunters averaged 88,353 (85.0%) annually and non-resident hunters averaged 15,641 (15.0%), for a total annual average of 103,994 elk hunters. Resident hunters accounted for 91.2% of antlerless harvest and 73.5% of bull harvest. Non-resident hunters accounted for 8.8% of antlerless harvest and 26.5% of bull harvest.

In Colorado, where a less expensive non-resident antlerless elk license is available, non-residents account for up to 20% of antlerless harvest (J. Ellenberger, personal communication). For 1999-2001, resident and non-resident elk hunters averaged about equal success rates on special permits, 34.8% and 34.4%, respectively. For the general elk license, non-residents averaged nearly twice the success rate (20.5%) of residents (10.7%). This was likely due, at least in part, to the much greater use of outfitters by non-resident elk hunters.

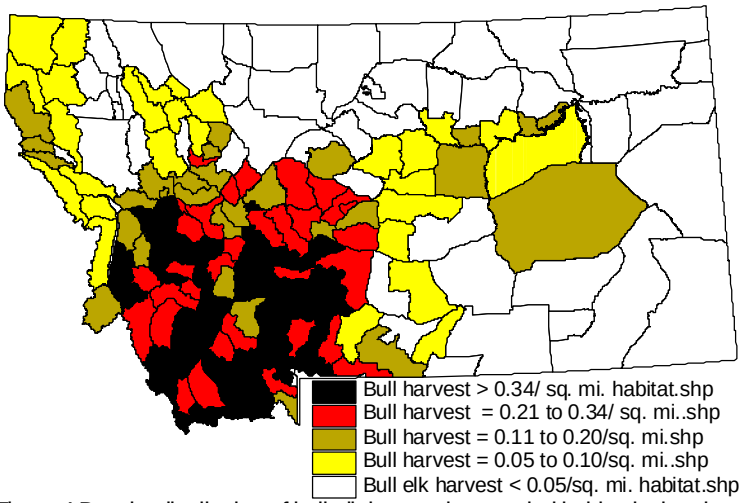

Figure 4.Density distribution of bull elk harvest in occupied habitat by hunting district, 1999-2001.

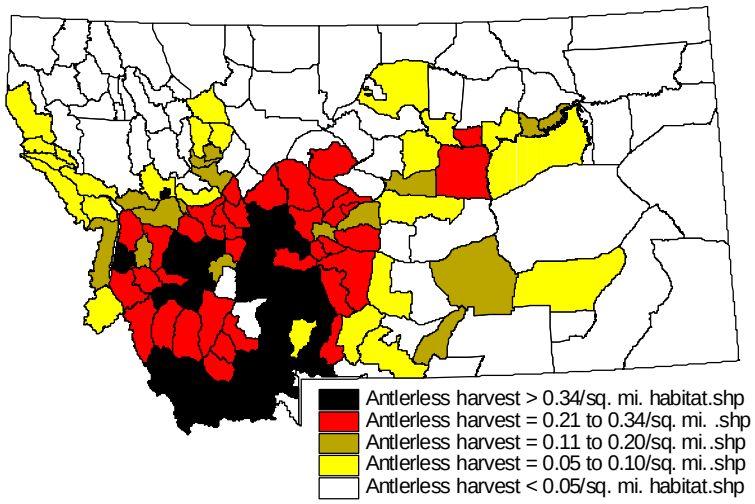

Figure 5. Density distribution of antlerless elk harvest in occupied habitat by hunting district, 1999-2001.

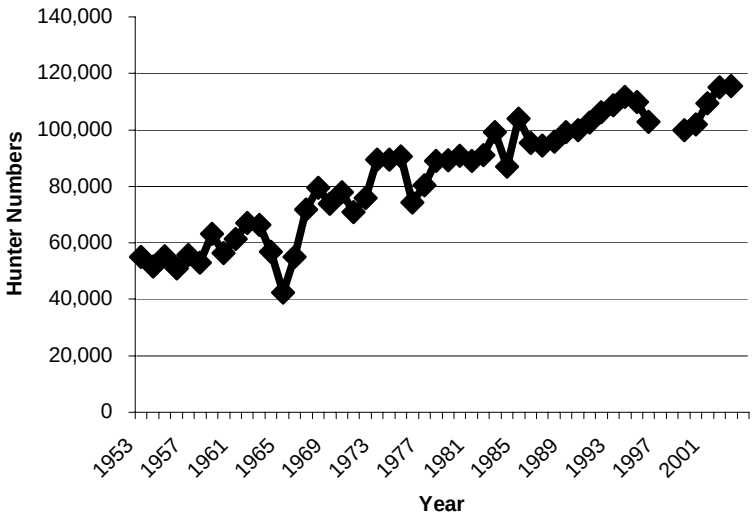

Figure 6. Annual number of elk hunters in Montana, 1953-2003.

Hunter numbers increased in Region 3 relative to other Regions since 1977 and especially since 1990. Hunter numbers have been relatively stable in Regions 1, 2, and 4 and have increased in Regions 5, 6, and 7. Average hunter density distribution by HD during 1999-2001 (Figure 7) indicated that generally, hunter density and elk harvest (Figures 4 and 5) coincided. However, northwestern Montana had relatively higher hunter density (Figure 7) than elk harvest (Figures 4 and 5).

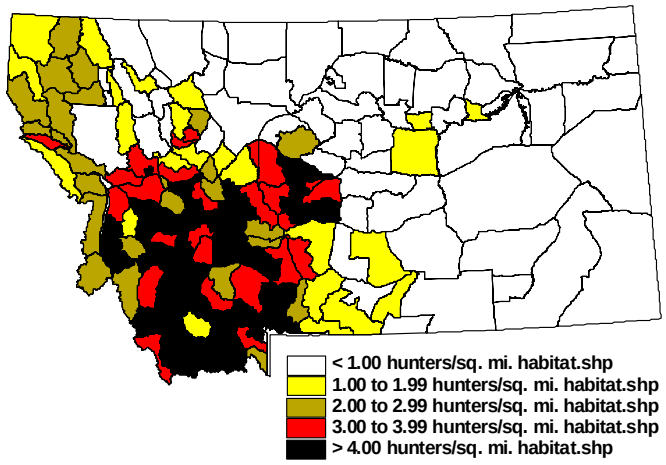

Figure 7. Density distribution of elk hunters in occupied habitat in Montana by hunting district, 1999-2001.

Figure 7. Density distribution of elk hunters in occupied habitat in Montana by hunting district, 1999-2001.

Elk Hunting Regulations

Elk hunting regulations have varied considerably in Montana through the years. Prior to the mid-1950s, many areas that support substantial numbers of elk now (and are even over objective) either did not have elk hunting seasons or had very short (3 days) seasons. During the 1960s through 1975, either-sex elk hunting occurred for at least a portion of the season in the majority (>70%) of elk habitat in Montana. In 1976, coinciding with a decline in mule deer populations and more restrictive regulations, much of the elk hunting in Montana was antlered bull with antlerless hunting by limited permit only. Increases in elk numbers throughout much of the state coincided with the reduction in either-sex regulations. Populations had generally been stable prior to that. During the early 1980s, some branch-antlered bull (BAB) hunting was introduced and brow-tined bull (BTB) regulations became widespread after 1990, occurring in about 50% of elk habitat today. During this recent period, harvest of antlerless elk was primarily by limited permits with statewide antlerless permit numbers varying between about 25,000 – 35,000.

A recent decline in statewide numbers of bulls harvested (Figure 3) has coincided with increased numbers of HDs under BTB regulations. Annual fluctuations in numbers of bulls harvested, even within the recent decline, have generally coincided with weather conditions during the hunting season. Antlerless elk harvest generally increased statewide with increasing antlerless permit numbers through the mid-1990s, but additional permits after that time contributed little to increases in antlerless harvest (Figure 3). Recently, antlerless elk harvest has primarily fluctuated with weather conditions during the season relatively independently of antlerless permit level.

A-7 antlerless only licenses worked well to increase antlerless harvest in some areas, but not others. Demand for A-7 licenses appears to be declining in many areas.

Youth seasons allowing harvest of antlerless elk on the A-5 license were introduced in 2002. This may help with recruitment of young hunters, but harvest of antlerless elk increased by less than 10% where implemented. About 1,000 more antlerless elk may have been harvested statewide in 2002 compared to 2001 with the added combination of the Youth hunt **and** more areas with a week of general season either-sex hunting. However, in 2000, without either of the opportunity enhancements, about 7,300 more antlerless elk were harvested than in either 2001 or 2002 because of “better” weather conditions during the hunting season.

In some areas with either migratory elk or that are closed to public access during the general season, attempts to harvest additional antlerless elk have been by late season hunts.

The 2003 Montana Legislature authorized an A-9/B-12 license, which allows the taking of a second elk (antlerless only) by hunters in certain areas. The contribution of this additional tool for antlerless elk management is yet to be determined. Based on the

Colorado experience, perhaps a further reduction in price of the non-resident B-12 license might be helpful.

HUNTING ACCESS ISSUES

The effectiveness of elk population management in Montana is dependent on public access to those elk during hunting seasons. Any elk hunting season or regulation, no matter how innovative, will not successfully achieve its intended harvest results if there is not adequate access by hunters to elk. In some cases, for management of bull elk, there have been problems of too much hunter access, leading to heavy harvest rates and low numbers of bulls in the population. However, recent management problems more frequently deal with inadequate access to achieve the antlerless elk harvest necessary to control populations in some areas. FWP biologists estimate that up to 35% of Montana's elk may be on private lands that are mostly unavailable (inaccessible) to the general public hunter during the 5-week general season due to no hunting allowed, outfitting, leasing, blocked access, or other factors. Some of these elk, however, are available to family and friends of landowners and outfitted clients, and to the general public for portions of the season, though few antlerless elk are harvested.

FWP Programs

For years, FWP has worked with private landowners to maintain hunter access to private lands to help achieve adequate harvests, reduce game damage, and provide recreation to hunters. More recently, these efforts have been formalized into three programs under Montana's overall Hunting Access Enhancement Program (see "Keys to the Treasure" by Alan Charles, Montana Outdoors, November/December 2002, pages 7-10 for more information). This program received a funding boost in 1995 (effective 1996) with implementation of the variable-priced outfitter-sponsored nonresident elk and deer license. In 2001 (effective 2002) all hunters, including residents, were assessed a Hunting Access Enhancement Fee which will help increase the number and types of hunter access projects implemented.

The best-known hunting access program, Block Management (BM), has been formally in existence since 1985. Growth of the program since 1986 in terms of landowners, acres, hunter days and dollars spent has been more than 10-fold (Table 4). As of 2002, the amount of acreage in the Block Management Program is larger than the state of Maryland, is equal to 9.5% of the land area of Montana, and the private land component is slightly less than 12% of all private land in Montana. Of Block Management hunters surveyed in 2003 (Charles and Lewis 2004), 31% reported hunting for elk on BM lands.

Substantial numbers of hunter days occur on BM lands in Regions 1-4, the primary Administrative Regions of elk harvest (Table 5). Although elk harvest from BM Areas as a percentage of total statewide harvest is unknown, some BM areas were created specifically to help reduce elk depredation and elk numbers in local areas.

Table 4. Landowners, acres, hunter days, and costs of the Montana Block Management Program, 1986-2002.

Year	Number of Landowners	Acres	Hunter Days	Weed Mgmt. Costs	Total Contract Cost[a]
1986	86	799,360			$30,418
1987	141	1,692,080			$58,230
1988	188	2,550,000			$82,550
1989	349	3,773,188			$203,445
1990	443	5,177,764			$238,000
1991	449	5,653,867			$363,006
1992	521	5,023,516	175,577		$156,335
1993	482	4,069,455	137,121		$138,874
1994	501	5,011,722	222,455		$185,917
1995	471	5,076,831	212,301		$225,055
1996	882	7,130,119	345,896		$2,757,103
1997	937	7,545,606	260,797		$2,571,358
1998	923	7,273,723	248,314		$2,541,863
1999	931	7,155,783	248,129		$2,545,761
2000	1004	7,696,500	279,918		$2,792,854
2001	1076	8,666,436	347,639	$80,212	$3,200,561
2002	1147	8,809,757	378,444	$142,757	$3,556,452

[a] Landowner Contract cost only. Does not include landowner/hunter services such as FWP patrollers, signs, materials, tabloids, maps, etc. In 2002, these costs were an additional $1,007,890.00.

Table 5. FWP Regional Block Management statistics for 2001.

Region	Number of Landowners	Acres	Hunter Days
1	12	782,388	46,989
2	126	497,153	23,543
3	86	720,678	46,002
4	177	1,274,609	51,508
5	129	889,806	31,480
6	237	1,152,654	59,010
7	308	3,350,809	89,474

Results of the 2003 survey (Charles and Lewis 2004) indicated that 93% of landowners and 89% of hunters were satisfied or very satisfied with the Block Management Program. Also, substantial majorities of landowners and hunters believed that the BM Program had improved or substantially improved landowner/hunter relationships. All of the figures reported above were increases from those reported in 1996.

Another FWP access program is Access Montana. This program was developed to help reduce land access conflicts and help maintain and improve access to the more than 35 million acres of **public** land in Montana. FWP works with public land management agencies and private landowners to establish access corridors across private land to reach inaccessible public land, mark public land boundaries, contribute to map production and document where public land access conflicts exist.

The Special Access Projects Program, the third formal program, focuses on regional species-specific hunting access needs. For example, in 2002, elk hunt coordinators were hired to help the public access lands associated with special elk reduction hunts. Additionally, this program has covered some costs of the Elkhorn Working Group, which is studying issues related to management of elk in the Elkhorn Mountains.

Two other FWP programs, although primarily related to providing habitat and habitat management for wildlife, including elk, also provide hunter access to elk. State-owned Wildlife Management Areas either purchased for elk range or having substantial elk usage currently total 21 areas with 306,083 acres. Conservation easements acquired with elk management in mind total 19 with 77,507 acres.

The Private Land/Public Wildlife Council (PL/PW Council) is a group of 15 members appointed by the Governor who are charged with defining common goals, including, but not limited to: 1.) achieving optimum hunter access; 2.) protecting wildlife habitat; 3.) minimizing impacts on and inconvenience to landowners; 4.) encouraging continuance of a viable outfitting industry and; 5.) providing additional tangible benefits to landowners who allow hunter access. The PL/PW Council provides recommendations to FWP regarding funding, modifications, or improvements necessary to achieve the objectives of the Hunting Access Enhancement Program. Composition of the membership includes 4 members representing landowner interests, 4 members representing outfitter interests, 4 members representing hunter interests, 2 legislators, and 1 FWP Commissioner (see http://fwp.state.mt.us/hunting/plpw/default.asp).

On 15 June 2004, the Council recommended re-authorizing the Hunting Access Enhancement Program by repealing sunset provisions and continuing the citizens' review committee. They also made 5 recommendations as possible new sources of additional funding for the Program and 5 recommendations for improvements to the existing Block Management Program.

Community Working Groups

Community Working Groups (e.g., Devil's Kitchen, Elkhorn, Bears Paw, Madison Valley Ranchlands) have been formed to help solve a variety of elk management problems, including hunter access. Typically, these working groups are composed not only of landowners in the area and FWP, but also sportspersons and other members of the affected community. Issues such as appropriate elk population levels, hunter access to those elk, habitat management and other issues may be discussed. Hopefully, a community-based approach to solving elk related problems and establishing common elk

management objectives results. Success has varied, but positive results have been achieved and further success is anticipated as discussions continue.

These groups have much potential in some areas, however Community Working Groups will not work everywhere. For example, if a landowner purposefully creates a "refuge" situation because of the desire to create a personal or leased hunting situation, they often have no desire to be a member of a "community" working to resolve the problem of excess numbers of elk on adjacent landowners lands after the hunting season. They may only "live" in the area during hunting season. If all affected parties do not recognize and/or desire to solve a "problem" or consider themselves "members of a community", an effective Working Group cannot be formed.

Private Hunting Ranches/Leased Hunting

Increasingly, hunting rights to private ranchlands have been leased to outfitters by the acre, animal harvested, per hunter, or a flat fee. Also, some landowners have become outfitters on their own lands. As the agricultural community has faced increasing economic difficulties, this option for extra income has become more attractive. Once established, the economic incentive for the landowner and outfitter is to maintain elk on their lands, at least during hunting season, with restricted hunting. If maintaining a livestock operation, the economic incentive is to have as few elk as possible on their lands at times other than during the hunting season.

In 1992, Duffield et al. (1993) conducted a survey of hunting outfitters in Montana. A subsample of 50 (12%) of 416 contacted outfitters leased or owned private lands for hunting. The size of 97 land tracts leased varied from 500 to 140,000 acres, averaging 27,262 acres for a total of 2,644,414 acres of private lands leased by outfitters for hunting in 1992. Ninety-seven percent were exclusive leases. Distribution of these leases was concentrated in FWP Region 3 (33.0%), Region 4 (26.8%), and Region 7 (16.5%).

Per acre charges were the most dominant (64%) form of payment to landowners; per animal, per hunter, flat yearly rate, and percent of gross were other methods of payment. However, an additional 31 parcels (55%) were owned by the outfitter/rancher and no fees were incurred. The key variables explaining lease rates were the presence of elk and the size of the leased area (Duffield et al. 1993). The average for deer/antelope or bird hunting leases was $0.33/acre and the average for leases that included elk hunting was three times as high ($0.99/acre). DNRC State lands are also leased to outfitters and although use may be exclusive to other outfitters, it is generally not exclusive of the public unless it is an isolated parcel within private lands.

In 2003, licensed hunting outfitters were authorized to operate on 6.1 million acres of private lands in Montana (Montana Board of Outfitters and FWP). This is a little more than twice the total estimated for 1992. Montana Board of Outfitters (MBO) does not record the species hunted on the "authorized for operation" private lands, so no estimate of the acreage used for elk hunting can be made. MBO would not authorize intersection of maps that could calculate distribution of these lands by FWP Region and elk

distribution, however, a gross look at the map indicates that the largest increases in "private lands where outfitters are authorized to operate" were in FWP Regions 7, 5, and 6.

Another increasingly common occurrence is for wealthy hunters or groups of hunters to purchase or lease a ranch primarily as a "private hunting ranch". Some real estate brokers are advertising certain ranches specifically for this purpose and further advising clients on how certain properties can block access to adjoining public lands, further enhancing landowner hunting/leasing opportunity.

These situations often result in little or no harvest of antlerless elk during the 5-week general season. After the general hunting season, elk often are grazing on the lands of adjacent landowners who did allow public access. These landowners with "hunting ranches" may feel no obligation to contribute toward a general elk reduction that may benefit their neighbors. It has not been possible to establish effective Community Working Groups in these situations. See the Economic Issues section for further discussion of outfitting/leasing/commercial use of wildlife.

"Ranching for Wildlife"/"Cooperative Wildlife Management Unit" Programs

A few individuals supported the "Montana Wildlife Partnership Program" proposed by The Montana Stockgrower's Association to increase hunter access in some areas. This proposal was similar to existing Programs in Colorado (Ranching for Wildlife, Jensen 2004) and Utah (Cooperative Wildlife Management Unit Program). However, the vast majority of public comments were adamantly opposed to this program (see Appendix A).

The Colorado (CDOW) Ranching For Wildlife (RFW) Program (**http://wildlife.state.co.us/ranching/ranching.asp**) has existed since 1985, about the same length of time as Montana's Block Management Program. After 18 years, the Program is still controversial (J. Apker, CDOW Ranching For Wildlife Coordinator, pers. comm.). The Colorado Wildlife Commission has put a moratorium on new properties in the Program and has asked for a review of the Program. As of 2003, the program included 29 ranches with over 1 million acres and the administrative cost of about $100,000 is covered, but would not be if fewer ranches were in the Program.

To be eligible for the Program, a ranch must contain at least 12,000 contiguous acres and a significant number of the species to be hunted. Participating landowners must also have a management plan to improve wildlife habitat acceptable to CDOW and must provide free access to public hunters who draw a limited license to hunt on that property. The number of licenses issued is negotiated between the landowner and CDOW. Ten percent of the male licenses and 100% of the antlerless licenses go to the public and the landowner can market 90% of the male licenses for trophy fees (usually to non-residents). Problems have included many landowners only meeting the minimum criteria for antlerless licenses as a business decision because antlerless licenses do not bring them income, only expense and "headaches" (J. Apker, pers. comm.).

Utah's Cooperative Wildlife Management Unit Program (**www.wildlife.utah.gov/proclamations/2004_biggame/xxviii.html**) is very similar. A minimum of 10,000 contiguous acres is required for properties with elk and in addition to the 10 % public/90% private male license and 100% public antlerless license split option, landowners may chose to receive vouchers for a portion of the antlerless licenses by reducing the portion of vouchers for male licenses they receive (e.g. 85% male, 15 % antlerless or 75% male, 25% antlerless). About 95 properties (not all have elk) with about 1.8 million acres are in the Utah Program (Wes Shields, Utah Program Coordinator, pers. comm.).

Benefits of the Programs have been that some wildlife habitat has been improved and that some increase in antlerless harvest has occurred. However, in Colorado, where similar to Montana, an elk overabundance problem occurs in some areas, that elk overabundance problem has not been solved. In 2003, 1,211 (4.9%) of 24,734 bulls and 1,203 (3.7%) of 32,597 antlerless elk harvested in Colorado were on RFW lands (**http://wildlife.state.co.us/huntrecap/index.asp**). Only 1.34% of total Colorado hunters participated in the hunts. With an estimated 280,000 or more elk in Colorado (J. Apker, pers. comm.) the harvest of 1,211 antlerless elk contributes little to reducing elk populations. Perhaps, it may slow population growth slightly.

Generally, Utah does not have an elk overabundance problem. A higher proportion of the Utah elk harvest than in Colorado occurred on Cooperative Wildlife Management Unit (CWMU) lands in 2000. (**www.wildlife.utah.gov/pdf/2001biggameannualreport.pdf**). Ten percent (802 of 7,915) of antlerless elk and 5.9% (389 of 6,572) of bull elk were harvested on CWMU lands. An estimated 3.7% of total Utah elk hunters hunted on CWMU lands.

If Montana had the same program as Colorado and the same percentage of harvest came from "RFW" lands in 2003, about 671 bulls (of 13,696) and 556 antlerless elk (of 15,025) would have been harvested on "RFW" lands. These figures are only rough estimates, bu the estimates are less than the estimate for antlerless elk harvested by the special Youth Hunts in Montana. With an objective to reduce the "real" elk population by 17,400 elk in Montana (see earlier) AND additionally remove the annual surplus to prevent further growth, something much more drastic than a Program that would harvest about 500-700 antlerless elk must be implemented.

Further, this program has benefited few total landowners (29 in Colorado and 95 in Utah). By comparison, Montana's Block Management Program, while providing lower monetary benefits, provided benefits to 1,147 landowners with 8.8 million acres in 2002.

EQUITY OF OPPORTUNITY ISSUES

FWP has conducted a variety of statewide and more focused surveys of hunters for attitude, opinion, preference, and characteristics over the years through its Responsive Management Unit. Statewide samples of resident and non-resident hunters were surveyed

in 1988 (Allen and FWP 1988), 1998 (King and Brooks 2001) and residents only in 2002 (Brooks, unpublished).

Hunter Demographics and Motorized Retrieval

Average age of all elk hunters increased from 38 years in 1988 to 46 years in 1998. For residents only, average age was 37 in 1988, 42 in 1998, and remained stable at 42 years in 2002. In 1988, 5% of the sample was female, 6% in 1998, and 12% in 2002. Participation in archery hunting increased from 1% of the sample in 1988 to 15% in 1998. The percent of resident hunters that used an ATV increased from 4% in 1988, to 8% in 1998, and 9% in 2002. Non-resident hunter use of ATVs increased from 4% in 1988 to 11% in 1998. Resident hunter use of horses decreased from 22% in 1988, to 15% in 1998, and 14% in 2002. Non-resident hunter use of horses declined from 37% in 1988 to 26% in 1998.

Opinions of hunters on the use of roads for retrieval of elk did not change much in the 1988, 1998, and 2002 surveys. For 1988, 1998, and 2002, 53, 51%, and 47% respectively, of hunters said that only open roads should be used for vehicle retrieval of harvested elk. For the same years, 31%, 32%, and 37% said that closed roads should also be available for retrieval by vehicle. Similarly, 22%, 18%, and 17% said that vehicles should be able to drive off-road for retrieval purposes.

It is possible that some increased harvest of antlerless elk could be achieved by access options that allow some designated time period for retrieval by ORVs/ATVs. However, three areas of concern make this proposal problematic. Harvest rates for bull elk are already adequate or more than desirable and additional access or retrieval options that increase harvest of bulls are undesirable. Problems with enforcement of existing ORV/ATV regulations cause concern with any increase in use of these vehicles or enforcement of new regulations. In some areas, any ORV/ATV use appears to redistribute elk to adjacent private land “refuges”, reducing their availability to hunters on public lands.

Equity Among Weapon User, Residency, and Economic Status Categories

Bull elk and especially large bull elk are in much demand for harvest and competition among various groups and categories of hunters exists for harvest of bulls. This has raised the issue of opportunity, equity and fairness. In addition, the demand for harvest of bull elk has contributed to reductions in desired harvest of antlerless elk in some ways. Compared to earlier years in Montana’s history, there is less demand to harvest “any elk”. There are more “bull only” hunters currently and more antlerless permits are applied for as a “backup” in case the hunter does not harvest a bull during the first 4 weeks of the season. Thus, success on antlerless permits tends to be lower than when the permit holder harvests the first legal elk they see. Also, the demand for harvest of large bulls has contributed to individual and outfitter leasing of lands for exclusive access to bulls and even purchases of ranches by some wealthy individuals (“Hunting for a Hunting Ranch”,

Hall & Hall Real Estate Group, fall 2002 newsletter). These areas acquired or leased to provide exclusive access to bull elk for a few people are generally closed to all hunting, including for antlerless elk by the general public. Thus, the competition for bull elk has contributed to increasing antlerless elk populations in some areas.

Archery Hunting

Archery hunting has generally been considered a season providing hunter recreation rather than a population management tool. In Montana, the archery season has generally been 6-weeks long, beginning in early September and extending through the rut into mid-October. In 1995, 15,769 archers harvested an estimated 1,268 elk in Montana comprised of 973 bulls (76.7%), 229 cows (18.1%) and 65 calves (5.1%). Sex and age composition is unavailable for recent years, but archers harvested similar totals for elk statewide in 1999 and 2000 (1,505 and 1,445, respectively). If sex and age composition were similar in 1999 and 2000 to that of 1995, archers would have harvested an average of 11.1% of bull elk and 2.3% of antlerless elk harvested in Montana during 1999 and 2000. Antlerless harvest by archers contributes little to antlerless population management, perhaps being important only where safety concerns dictate no rifle hunting. Recently, however, it has become apparent that archery harvest has impacts on management of bull elk, at least in some areas.

Averaged for 1999 and 2000, 6.4% of the statewide elk harvest was by archery (Table 6). Archery kill made up a higher portion of non-resident elk harvest (13.6%) than resident elk harvest (5.0%). Sex and age composition of the kill for these years is not available, but likely it was heavily skewed toward bulls as it was in 1995 (see above). Of total elk archery harvest in Montana, 34.1% was by non-resident hunters compared to 14.7% of total rifle kill of elk by non-residents (Table 6). Non-residents averaged about 15% of total elk hunters in Montana during 1999-2001. Thus, archery harvest of elk (especially bulls) is disproportionate by non-resident hunters. Archery kill of elk is highest on a percentage basis in central and eastern Montana where the majority of general season elk hunting is by limited-entry (LE, permit only) (Table 6). Numerically, archery harvest is highest in Region 3 where total elk harvest is highest, though on a percentage basis, it is lowest there (4.2%). Harvest of elk by archery is most important in the Missouri River Breaks (MRB) hunting districts where 25.9% of total elk harvest was by archery in 1999 and 2000. For 1998, when sex/age composition was available, 31.1% of bull harvest in MRB districts was by archery and 40.9% of this archery bull harvest was by non-resident hunters. Most of the non-resident kill of elk in these LE areas is by archery (Table 6).

Of new entries to the Montana Boone and Crockett and Pope and Young records for elk between 1990 and 2000, archers took a disproportionate share of record class bulls. Fifteen (30.6%) of 49 new entries of bull elk in either book scoring ≥ 360 points Typical or ≥ 370 points Non-typical between 1990 and 2000 were taken by archers, who comprise about 15% of elk hunters. Archers may hunt every year in areas like the Missouri River Breaks and are also able to hunt during the rut.

Because some hunters expressed dissatisfaction about the elk archery season in the MRB hunting units, during 2000 an opinion survey was conducted of archers who hunted this area (Lewis and King 2001). The archers surveyed were asked to respond to 6 proposed management actions that addressed a perceived crowding/competition among hunters in MRB archery hunting units. Nearly 60% of respondents supported or strongly supported making NO changes to current season types/structures. About 70% of respondents opposed or strongly opposed changes that would prevent MRB archery hunters from also hunting elk in other parts of the state by either archery or rifle or to limit MRB archers to specific time periods that were less than the full archery season. The 2 most frequently mentioned comments in open-ended responses were: 1.) make no changes to current season types/structure; and 2.) place some limit on the number of non-resident archery hunters (Lewis and King 2001). Only archers were surveyed; hunters that apply for general season permits that allow hunting by rifle in the MRB hunting units were not surveyed.

In recent years, there appears to have been an increase in the number of archery hunters supporting a limited number of archery permits in HDs 621/622 and 410 to reduce crowding. Support for this idea was also voiced at the 2004 season-setting public meetings in Region 6 and in a petition signed by 72 archers and sent to the Region 6 FWP office in Glasgow in May 2004.

Table 6. Elk harvest statistics for archery and resident/non-residents averaged for 1999 and 2000 by Region in Montana and for the Missouri River Breaks hunting districts.

Area	% of total elk kill by archery	% of elk archery kill by non-residents	% of elk rifle kill by non-residents	% of non-resident elk kill by archery	% of resident elk kill by archery
Region 1	8.8	28.0	16.9	13.8	7.7
Region 2	5.3	18.0	8.7	10.4	4.8
Region 3	4.2	31.8	17.5	7.4	3.5
Region 4	9.4	35.5	14.3	20.4	7.2
Region 5	5.5	37.8	12.9	14.5	4.0
Region 6	29.3	47.9	4.2	82.7	18.4
Region 7	18.8	62.2	11.3	56.0	9.0
STATE	6.4	34.1	14.7	13.6	5.0
	Missouri River Breaks Hunting Districts				
HD 410	25.6	39.9	2.9	82.5	17.6
HD 417	23.8	30.4	6.7	58.6	18.9
HD 621	42.5	37.0	5.8	66.7	17.3
HD 622	46.4	51.0	3.6	92.5	30.5
HD 631	34.3	21.3	5.6	66.7	30.3
HD 632	27.1	18.8	4.7	60.0	24.1
HD 700	13.8	65.3	8.9	54.2	5.8
Total MRB	25.9	40.6	5.0	74.1	17.9

Trophy Hunting/Bigger/Older Bull Elk

"Trophy management" in Montana is primarily limited to those areas where, because of insecure habitat, hunter numbers must be controlled by limited-entry (LE) permits. Additionally, some late-season opportunity to hunt "trophy" bulls is available by LE in HDs 313 and 310, near Gardiner and in the Gallatin Canyon, respectively. The number of HDs and area of habitat where bulls can only be harvested with LE permits has increased. This has occurred primarily with expansion of elk into insecure habitats of central and eastern Montana. These areas of LE hunting have increased from 21 HDs with 545 ES permits and 11,178 applicants in 1992 to 26 HDs with 1,149 ES permits and 20,785 applicants in 2002. The demand for opportunity to hunt these areas is intense because of "trophy type management" and the presence of older, larger-antlered bulls. Some of these areas, particularly the Missouri River Breaks HDs, also experience substantial hunting pressure by archers. Additionally, opportunity to hunt for "trophy" bulls exists in some areas of Montana with general hunting that have secure habitat (unroaded to lightly roaded, rugged terrain, and substantial timber cover).

Another regulation type considered by some to be a "trophy type" regulation is the general "spike" season with BTB (ES) on limited entry permits. This regulation has been in place in the Elkhorn Mountains (HD 380) since 1987 and was implemented in HD 339 in 1996. Average age of bulls harvested on these permits in HD 380 had increased to over 6-years-of-age by 2000. About 84% of the annual bull harvest in HD 380 is "spikes" and 16% older bulls. This regulation type is popular in the areas where it occurs. A similar season exists in Idaho in the Centennial Mountains and just south in the Island Park Unit. BTB:100 cow ratios and ES permit levels are both relatively higher there than in HD 380, however, their general spike season has been only 1 to 2 weeks (2 weeks currently) compared to 5 weeks in HD 380.

The opportunity to harvest bull elk during the rut with a rifle exists in HDs 150, 151, 280 and 316 (early backcountry hunt). Primarily because of safety concerns, hunting in some HDs or portions of HDs is limited to archery only or archery, shotgun, traditional handgun or muzzleloader only. Some areas in Region 3 have special limited general and late season opportunity for ES elk hunting for youth (12-14) and disabled hunters. This has partially addressed concerns with recruiting new hunters and reaching goals expressed in the "Crossing the Barriers" Program.

Other "trophy" type hunting areas are private lands where access is controlled by the landowner or outfitter leasing access. These areas are equivalent to limited entry hunting districts. With limited access elk tend to find refuge there and with low harvest rates bull size and age tends to be greater. However, most Montana residents are very opposed to these types of areas because of the lack of desire and ability to individually pay for hunting access. This has led to the belief that "the rich get to hunt bulls while the Montana resident is left to cleanup the overabundance of antlerless elk".

In 1998, resident hunters were willing to pay about equal amounts more to double their chances of harvesting a 6-point or greater bull or see half as many hunters on their trip (King and Brooks 2001). Non-resident hunters were willing to pay about 50% more for the opportunity to harvest a 6-point or greater bull compared to the opportunity to see half as many hunters.

In 1998 and 2002 (King and Brooks 2001, Brooks, unpublished), resident hunters were asked to choose among 3 bull elk regulation types: 1.) no permits required, hunt every year anywhere in the state, odds of harvesting a bull less than 1 in 10; 2.) unlimited permits, must choose hunting district, can hunt every year; and 3.) limited permits, may only receive permit 1 of 5 years, much better chance of harvesting a bull. Option 1 was favored by 39% of hunters in both 1988 and 2002, option 2 by 18% in 1988 and 17% in 2002, and option 3 by 10% in 1988 and 16% in 2002. Including the response of "do not favor, but would accept it", 63% of resident hunters in 1988 and 57% in 2002 chose option1, 50% and 44.0% option 2, and 28% and 31% option 3. These results indicate that resident hunters prefer the opportunity to hunt every year to an improved chance to harvest a bull when they do hunt. It also indicated that they prefer the opportunity to hunt in multiple locations in the state within a year to an increased opportunity to harvest a bull. In 1988, non-residents favored option 2 (unlimited permits by hunting district).

ECONOMIC ISSUES

Agricultural interests have economic issues related to the real and perceived overabundance of elk in some areas. Damage to private lands can occur on an economic basis at far less than biologically/ecologically maximum population size for elk. Even relatively low elk population levels can impact ranchers who are trying to make a living by converting vegetation to pounds of saleable livestock. This issue also involves concerns by the public about FWPs game damage policy and access to harvest elk on private lands. A few comments expressed concern about management changes that might affect outfitter income and FWP income. Changes in FWP income could affect management options.

Elk-related Income to Montana

Hunting and wildlife watching accounted for an estimated $587,940,000 in expenditures in Montana in 2001, of which $221,521,000 (37.7%) was by non-residents (U.S.D.I., FWS and Dept. of Commerce, U.S. Census Bureau). Depending on the source used (Minnesota IMPLAN Group 2002, Montana Agricultural Statistics Service – http://www.nass.usda.gov/mt/), hunting and wildlife watching generated 23-25% of the economic output that farming, ranching, and agricultural services provided in Montana. Comparable figures (again, varying with source) were 62-86% of mining output, 38-95% of oil & gas output, and 32-62% of wood and paper products output. Output for the latter industries varies considerably among years and has been declining while economic activity for hunting and wildlife watching has generally been increasing. Estimates of the Net Economic Value of elk hunting in Montana (Duffield 1988, King and Brooks 2001, and Brooks unpublished 2004) indicated that daily expenditures + license fees would

have accounted for a minimum of about $81,289,000 in expenditures for elk hunting, or a minimum of about 14% of all wildlife hunting and viewing expenditures.

During 2002, 4,359 non-resident big game combination outfitter sponsored licenses and 652 non-resident elk combination outfitter sponsored licenses (5,011 total) were sold. Addition of 35% (1,754 non-sponsored hunters – see Draft revised Montana Elk Management Plan) to that total indicates that 6,765 hunters may have used the services of outfitters to hunt elk in Montana during 2002. At an average price of $3,472 per elk hunt (see Draft revised Montana Elk Management Plan), 6,765 elk hunters may have provided about $23,488,080 in income to Montana outfitters. Thus outfitting elk hunters contributes substantially to bringing income to Montana from outside the state.

Elk-related Income to FWP

In 2002, elk license sales to Montana residents generated $1,861,925 in income to FWP and non-resident elk license sales generated $11,715,222 in income to FWP. This total of $13,577,147 was about 53% of all license fees received by FWP and equal to the entire budget for the Wildlife Division. It also accounts for a high proportion of FWPs discretionary spending because much other FWP funding is earmarked for specific purposes. This total does not include elk permit drawing fees, archery license fees, or conservation licenses fees not included in license packages. It also does not include a share of $5.6 million in Federal Pittman-Robertson funds that could be attributed to elk hunting/hunters. Thus, elk and elk hunting are of major importance to FWP funding and to conservation and management programs for elk and many other species.

Montana's Agricultural Economy

Agriculture was the leading industry in Montana in 2001, contributing $2,329,600,000 in economic output (Montana Ag. Statistics Service – http://www.nass.usda.gov/mt/). Of this, crop cash receipts were $635,000,000 (27.3%), livestock cash receipts were $1,119,000,000 (48%), and government payments were $476,000,000 (20.4%). Other receipts were about $100,000,000 (4.3%).

Cattle and sheep numbers have varied tremendously over the years in Montana (Figure 8, Montana Agricultural Statistics Service – http://www.nass.usda.gov/mt/). Sheep numbers on 1 January rose to a peak of 5,736,000 in 1903 and have steadily declined to 300,000 in 2004. Cattle numbers rose to a peak of 3,380,000 in 1974 and declined to 2,400,000 in 2004. Since the time the previous Elk Plan was released (1992), cattle numbers rose from 2,550,000 in 1992 to 2,750,000 in 1996 and declined to 2,400,000 in 2004. Sheep numbers declined from 678,000 in 1992 to 300,000 in 2004. Value per head has risen since 1992 (Montana Agricultural Statistics Service – http://www.nass.usda.gov/mt/) such that value for cattle inventory on 1 January was $2,280,000,000 in 2004 compared to $1,836,000,000 in 1992. Value for sheep inventory was $36,000,000 in 2004 compared to $38,646,000 in 1992.

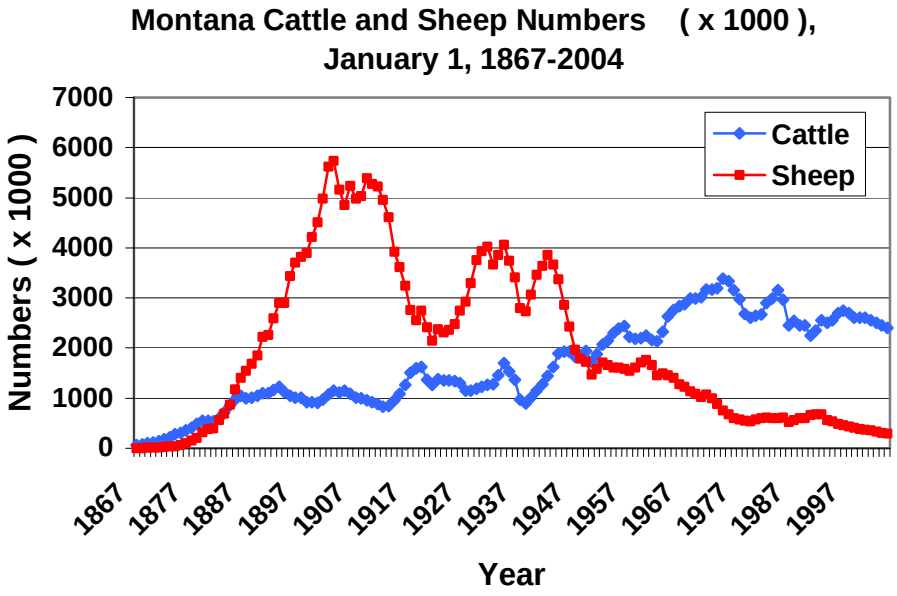

Figure 8. Montana cattle and sheep numbers, January 1, 1867-2004.

An undetermined amount of income for some agricultural operations occurs from hunting (including elk) activities including leasing fees and direct fees including outfitting/guiding fees.

Elk and Livestock Economic Competition

Over the years, the estimated Animal Unit (AU) or AUM (month) equivalent for elk and cattle has been debated by various authors, but has generally ranged from 0.33-0.53 cattle equivalent AUs/AUMs per elk (Murie 1951, Stoddard and Smith 1955, Skovlin et al. 1968, and Thorne et al. 1976). These figures are all probably somewhat high because they do not take into account the greater consumption of forbs and shrubs by elk (Hobbs and Carpenter 1986) and the average increase in weight of cattle and earlier birth of calves since the Society for Range Management convention of a 1,000 pound cow consuming 26.4 pounds of air-dried forage per day for an AUM in 1974 (Society for Range Management 1974). The average weight of elk has not increased during that time. Nevertheless, for the following analysis, we use 0.5 as the cattle equivalent (CE) AU for elk (probably producing maximum impacts by elk).

From 1938 to 1975, cattle AUs in Montana on 1 January increased from 890,000 to 3,475,000 AUs (http://www.nass.usda.gov/mt/, Figure 8). During the same period, cattle equivalent elk AUs increased from an estimated 9,830 (19,660 elk) to an estimated 26,500 (53,000 elk). The increase in elk AUs of 16,670 during the period was dwarfed by the increase in cattle AUs of 2,585,000. The magnitude of increase in cattle AUs was a major land use change and impact. Due to market changes, marketing decisions, landownership changes, and recent drought, cattle AUs have declined more recently (Figure 8), but substantial annual fluctuations occur. Cattle AUs increased by 460,000

from 1990 to 1996 and then declined by 383,000 AUs to 2004, for a net increase of 77,000 AUs during the period (Figure 9). Estimated cattle equivalent elk AUs increased from 43,000 in 1990 to 54,000 in 1996 and 73,000 in 2004, for a net increase of 31,000 elk AUs during the period. Thus, even during the recent period of substantial growth by Montana elk populations, the net increase in cattle AUs during the period was greater than for elk. In 2004, total estimated cattle equivalent **elk** AUs were a little less than 3% of reported cattle and sheep AUs in Montana.

Private grazing fee rates were $15.20 per animal unit month, $17.40 per cow-calf unit month, or $15.90 per head per month in 2003 compared to $11.86, $12.61, and $11.97 for the same units in 1992 (Montana Agricultural Statistics Service – http://www.nass.usda.gov/mt/). Thus, the estimated 876,000 cattle equivalent AUMs of grazing by elk in Montana during 2004 would be "worth" about $13,315,200 in grazing fee value. About 35% of harvest occurs on private/corporate lands and about 35% of yearlong elk distribution includes private lands. If forage use by elk were equivalent to these broad distributional figures, about 306,600 CE elk AUMs (about 25,500 "year-long elk") worth about $4,660,320 occur on private/corporate lands.

Substantial grazing by domestic livestock occurs on public lands (USFS, BLM, DNRC, USFWS, FWP). In 2003, 17,965 livestock AUMs were grazed on FWP Wildlife Management Areas. The equivalent private grazing fee value of the AUMs would be $273,068. Because of all the different agencies involved, total numbers for cattle grazing on public lands are difficult to assemble. However, a total of about 51,000 cattle (about 2% of Montana's total in 2004) grazing public land for 6 months would consume the about the same amount of public land forage as elk consume private land forage.

Statewide level analyses do not adequately represent individual situations. Unfortunately, information does not exist to analyze each local situation and these situations can change annually with weather, economic conditions, and elk harvest (Adkins and Irby 1992). Some landowners experience little conflict with elk while others experience considerably more. Often, individual perception of degree of conflict varies depending upon whether the landowner is dependent on agricultural income for their livelihood (Lacey et al. 1993). Two surveys done in 1989-1992 reported on Montana landowner perception of economic losses due to big game animals, including elk. Landowners in southwestern Montana in 1989-1990 "self-reported" an average economic cost due to all big game of $6,467, with the biggest cost being forage consumption ($5,616) (Lacey et al. 1993). Individual estimates were said to vary considerably from zero on up, but no maximum figure was given (Lacey et al. 1993). Elk accounted for 41.9% of this loss ($3,207 in 2004 grazing fee value). Irby et al. (1996) surveyed landowners statewide in 1992 and 49% indicated that they had suffered economic losses from all wild ungulates (elk not separated). Based on 1992 values, the average reported loss of forage crops was $864, ranging from zero to $31,180. These figures were considerably lower than reported by Lacey et el (1993), but Irby et al. (1996) also reported that losses were higher in southwestern Montana. They (Irby et al. 1996) also stated that self-reported losses, including those of their study, tend to be overestimates.

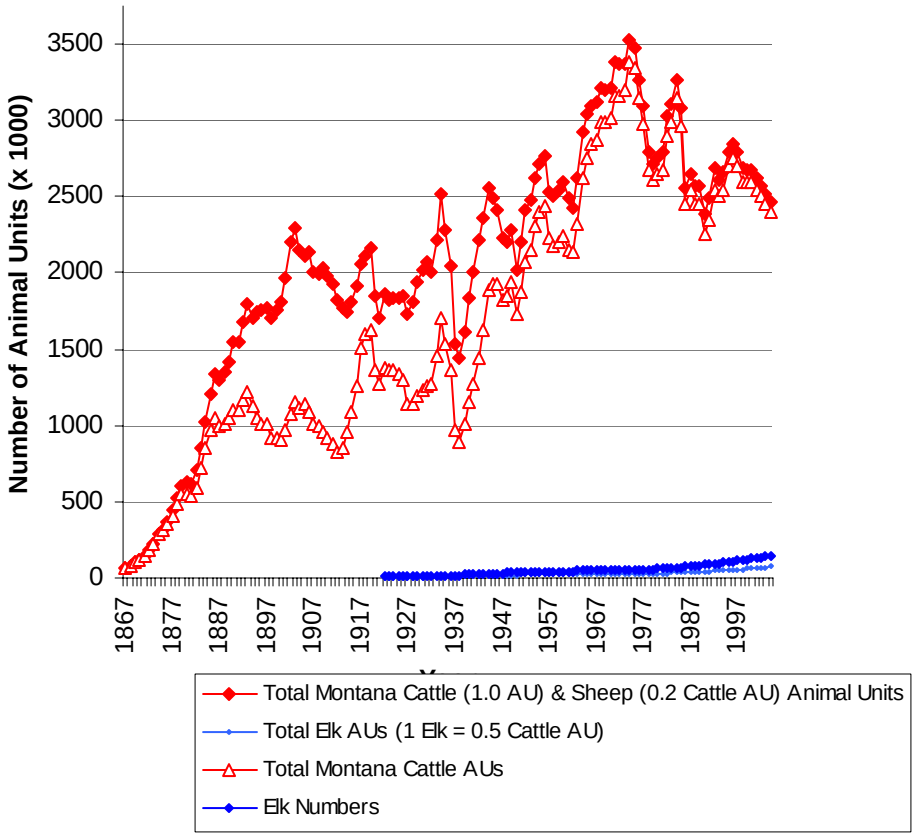

Figure 9. Number of Cattle and Sheep Animal Units 1 January (reported by Montana Agricultural Statistics Service) and estimated number of Elk and Cattle Equivalent Elk Animal Units on 1 January (1 elk = 0.5 Cattle AU) in Montana.

BIOLOGICAL/ECOLOGICAL ISSUES

FWP has developed programs and protocols for testing Montana's wild elk populations for both Chronic Wasting Disease (CWD) and Brucellosis. Montana is a participant in the Montana Brucellosis Management Plan for the Greater Yellowstone area and is drafting a CWD Management Plan and Environmental Analysis where the issue will be more fully developed. To this time, Chronic Wasting disease has not been detected in wild populations of deer and elk in Montana, however, with the presence of CWD in surrounding states and Canadian provinces, CWD may soon appear in Montana. Infection rates of elk for brucellosis are zero for most of Montana, but have been about 1-2% for a few areas near Yellowstone National Park that include elk which spend summer in YNP. FWP is beginning several studies in cooperation with the USGS – Biological Survey and Montana Dept. of Livestock to examine both CWD (southeastern Montana) and Brucellosis (southwestern Montana) in relation to wild ungulate populations. High numbers of elk or concentrations of elk contribute to spread of disease, thus controlling overabundance of elk, integral to Montana's Elk Management Plan (see Draft revised Montana Elk Management Plan), is also important for the Brucellosis/CWD issue.

HABITAT/GAME DAMAGE ISSUES

Habitat issues are integral to the mission of FWP and the statewide elk management goal of maintaining healthy elk populations and elk habitat. They also have implications to the issues of hunter access and the economy of Montana. Although some disagreed that elk numbers were too high in some areas, they were concerned with the implications of overabundance of elk where it occurred.

Yearlong ranges of elk may encompass lands administered by several federal and state land management agencies and private and corporate landowners/managers. Some elk herd ranges also extend into National Parks, other states, and Canadian provinces. Of total elk distribution in Montana, 45.3% is on lands managed by USFS, 37.3% by private/corporate owners, 7.1% by BLM, 4.3% by DNRC, 3.5% are Indian/Tribal lands, 1.8% by USFWS, and 0.6% by FWP. Thus, management of elk habitat, including conflicts with other resources, game damage, hunting access, and competition for elk hunting opportunity is very complicated.

Although the primary responsibility of FWP regarding elk is managing populations through designing and enforcing hunting regulations, we cannot ignore issues dealing with the habitat that supports and perpetuates elk populations. FWP concerns with habitat/land management relative to elk fall into 2 categories: 1.) preserving important wildlife habitats and maintaining/enhancing the basic productivity of the land – soil, water and vegetation and; 2.) land management activities that influence elk management prescriptions. FWP accomplishes actions directly in the first category and also consults with and provides recommendations to other agencies for preservation/maintenance of elk habitats. For the second category, FWP provides responses/recommendations to other agencies on proposed actions.

In 1987, the sportspeople of Montana proposed legislation to provide a stable, earmarked funding source for wildlife habitat acquisition. The law (HB 526) provided for an earmarking of a portion of hunting license dollars for protecting wildlife habitat. FWP had a wildlife habitat acquisition program since 1940 that had acquired important elk winter ranges, but funding was not stable. In 1991, the Montana legislature mandated a study of the FWP habitat program. As a result, in 1995, the FWP Commission as part of their Habitat Montana Policy adopted a Statewide Habitat Plan. Although fee-title acquisitions remained an option, much greater emphasis was placed on use of conservation easements, management agreements and leases. Because of the level of threat, a goal of conserving 10% of the intermountain grassland, shrub-grassland and riparian ecosystems was established. Criteria were also established for determining suitable projects and type of conservation action.

Through FWP, the state of Montana has acquired 21 Wildlife Management Areas (WMAs) totaling 306,083 acres (fee-title and leased) of elk habitat (primarily winter range). About 17,500 elk winter on these WMAs. Because of strategic location, acquisition of about 0.3% of Montana’s land supports about 18% of the elk counted in

Montana during winter. WMAs have their own management plans. Additionally, 77,507 acres of elk habitat have had housing development precluded, managed grazing systems implemented, and hunter access guaranteed through FWP acquisition of conservation easements. FWP has developed a policy for fencing specifications relative to elk and other wildlife on WMAs. These specifications can serve as recommendations for other lands with elk use.

FWP does not monitor vegetation on a widespread scale throughout elk habitat. However, FWP has vegetation-monitoring programs (permanent standard measurement plots and photo plots) established on some of its WMAs. These are monitored on a long-term basis to determine whether the plant community is stable, declining, or improving relative to time of purchase and to current elk numbers. An option for FWP to explore that will expand habitat monitoring is cooperation in design and monitoring of vegetation monitoring programs by land management agencies. Another potential habitat monitoring technique is the use of allantoin:creatinine ratios in elk urine in snow (Pils et al. 1999, Hamlin and Ross 2002) to monitor energy content of the elk diet over time. Short-term changes will relate to immediate conditions such as snow depth. Consistent deterioration over long periods, however, could indicate a decline in vegetation (forage) composition and condition.

The vegetation data collected thus far at monitoring transects on WMAs do not indicate deteriorating range conditions despite increasing elk numbers on some areas over the years (B. Harrington, personal communication). Weight and condition data collected from harvested elk at check stations throughout Montana do not indicate that elk are in "poor" condition or facing nutritional deficits, even where elk are above objective numbers. Data for the energy content of elk diets on the Wall Creek WMA and the Hungry Horse elk herd during the severe winter of 1996-1997 (Pils et al. 1999, Hamlin and Ross 2002) indicated that diet quality was greater for these populations than for populations in Yellowstone National Park and equal to that of the artificially fed population on the National Elk Refuge in Wyoming. Limited data suggests that the quality of winter elk diets in the Gravelly-Snowcrest Mountains were even greater than those of the artificially fed population during milder winters (Hamlin and Ross 2002). Also, we have not observed "winter-kills" of elk in portions of Montana not associated with YNP that might be attributed to poor forage conditions.

The limited habitat/forage/elk condition information currently available to FWP indicates that "shall consider the specific concerns of private landowners" may be the most operative factor in determining "sustainable numbers" of elk at this time.

FWP response to game damage is established by law (MCA 87-1-225, ARM 12.9.801, 12.9.802, 12.9.805, and 12.9.808) and is fully described in the Draft revision of the Montana Elk Management Plan.

INFORMATION/DATA ISSUES

Improved Accuracy and Reliability - Surveys of Elk Numbers and Harvest

We discussed elk surveys and estimating elk numbers earlier. Within a number of EMUs, improvements to survey techniques such as changing from fixed-wing to helicopter, increasing the frequency of flights, and coordinating timing of flights with adjacent areas are proposed. Also, several EMU Plans call for addition of new survey areas.

Increasing the rigor of elk census flights and adding more areas where we would determine observability estimates over a range of conditions similar to the mule deer AHM program would be necessary to attempt estimates of "true" elk population numbers. An estimated $1,000,000 or more would be necessary for developmental costs to establish observability estimates for additional areas/habitats (K. Hamlin memo to D. Childress, 01-21-03). An estimated additional $300,000 more than is currently expended (a little more than $1.8 million in FY 2001-2002) would be necessary annually to fly increased numbers of aerial surveys. This would also increase the number of biologist days for flying and analysis by at least 280 days annually. As stated earlier, even given the money, it is unlikely that there are enough qualified pilots and good flying weather available during the census window of time (late December – mid-April) to totally accomplish a program for elk similar to that for mule deer.

Some of the public have expressed distrust of the results of Montana's harvest survey and prefer a mandatory report card. An independent investigation and analysis of the harvest survey methods of 12 western states (Bate et al. 1995) indicated that Montana, Colorado and Idaho (all using the telephone survey) had the most accurate, reliable and well-designed harvest survey methods. Mandatory report card systems were found to work well only in states such as Nevada where there were only a limited number of hunters and all hunts were by limited entry (drawings for permits). Requirement to conduct a mandatory hunter report card system to estimate big game harvests would result in at least a 3-fold increase in costs to FWP and probably provide less reliable information (Bate et al. 1995). Hamlin and Erickson (1996) discussed a variety of other problems with mandatory report systems, including non-response bias, low compliance rates and enforcement. Despite results of the study by Bate et al. (1995), Idaho Department of Fish and Game was forced by the public to go to a mandatory report system in 2000. Response rates are low (must conduct telephone survey to estimate non-response bias), information is untimely (now not available prior to season-setting), and data is of poor quality (hunters reported harvest in over 2,200 hunting units – of only 90 actually present)(M. Hurley, personal communication).

Providing More Information to the Public in a Timely Manner

This is an important issue raised by the public and FWP will respond to the best of its ability. SB 209, passed by the 58th Montana Legislature also concerns timely reporting of results of trend count surveys or other methods of estimating populations. Internally, as well, improved and timely accessibility to information will be helpful. A process has

been established for recording and reporting results of mule deer surveys within the AHM program. This protocol could serve as a template for the elk survey reporting. Work will also proceed on the dissemination process. Where appropriate and technically feasible, FWPs website will be used along with other methods. Methods other than the website will remain necessary as not everyone one uses computers/internet. Timely reporting of elk population counts and ratios along with the AHM Regulation Packages proposed in the Draft revised Elk Management Plan would provide the public advance notice of FWP elk management recommendations.

CHAPTER 4. – ENVIRONMENTAL CONSEQUENCES

This Chapter compares Alternatives for effects on Resources. The Chapter is organized by Resources and then by relevant issues within each Resource category. Expected environmental consequences are presented for each Alternative by Resource and Issue category. We address issues that do not naturally fall under Resource categories in a separate section at the end of this Chapter.

PHYSICAL/BIOLOGICAL ENVIRONMENT

Land Resources – Soil, Water, Air, and Vegetation

Air:

Neither Alternative will have direct, indirect, or cumulative impacts on air.

Soil, Water, and Vegetation:

These Resources are analyzed together because any potential impacts on these Resources by Alternatives are interrelated. Overuse of vegetation and overabundance of elk could result in impacts to soil (erosion) and thereby impacts to water.

Alternative A (No Action)

Potential impacts of Alternative A (No Action) discussed below are minor, local, and/or short-term and are not significant.

Under this Alternative, FWP would not adopt Adaptive Harvest Management (AHM). Elk numbers have increased above objective levels in some areas under the current Elk Management Plan (No Action). FWP expects increases in elk numbers to be less likely to be controlled in some areas, especially in a timely manner, under the No Action Alternative than the Proposed Action. Although FWP has not determined that direct, indirect or cumulative impacts to soil, water, or vegetation related to elk numbers are occurring currently, further increases in elk numbers in some areas could potentially be such that direct or cumulative impacts could occur. However, because natural forces (drought and severe winters combined) can result in substantial reductions in elk numbers (e.g. Northern Yellowstone elk, 1988-89 and 1996-97), it is uncertain that elk numbers would build up high enough under the No Action Alternative to result in long-term or cumulative impacts to soil, water, or vegetation. The majority of lands, landowners, and land managers would see no impacts.

Alternative B (Adaptive Harvest Management – Proposed Action)

Potential impacts of Alternative B (AHM) discussed below are minor, local, and/or short-term and are not significant.

FWP believes that adoption of the Proposed Action (AHM - Alternative B) will be more likely to maintain elk numbers within objective range than the No Action Alternative. Thus, the Proposed Action is expected to maintain elk numbers at levels that would not directly, indirectly, or cumulatively impact soil, water, or vegetation. However, reduced elk numbers in some areas are not certain under the Proposed Action. Through AHM, FWP is supplying regulation options to reduce elk numbers, however landowners in areas with elk overabundance problems must supply access to elk hunters for reduction in elk numbers and reduced likelihood of impacts to soil, water, and vegetation to occur.

Biological (Fish & Wildlife)

Elk Numbers and Population Composition:

Alternative A (No Action)

Potential impacts of Alternative A (No Action) discussed below are minor, local, and/or short-term and are not significant.

Because elk numbers have increased above objectives in some EMUs under the current Elk Management Plan, it is likely that this trend will continue or that elk numbers will not be substantially reduced from current levels under the No Action Alternative. For areas where elk numbers are below objective (Table 3), it is possible that desired increases could occur for those areas under Alternative A (No Action).

Little change in observed post-season bull:100 cow ratios would be expected with the No Action Alternative. If elk numbers continue to increase in some areas under the No Action Alternative, it is possible that calf:100 cow ratios could fall if numbers increase enough to cumulatively affect nutritional levels. This would tend to help reduce elk population level, but would occur after potential short-term damage to vegetation had occurred.

If elk populations continued to increase in some areas and current or increased hunter access occurred, elk harvest could increase. It is also possible that movements by elk out of high-density areas into more hunter accessible areas would result in increased harvest. The sustainability of this increase would depend upon populations remaining high. If populations declined because of higher harvests or a reduction in recruitment because of lower nutrition, the temporary increases in harvest would not be sustained.

Pending further public comment, elk population objectives (Table 3) would not be different between the two Alternatives. Objectives are subject to annual to bi-annual revision and that process has taken place as part of the more major revision proposing AHM.

If elk populations continue to increase under the No Action Alternative, it is possible that other wildlife species such as mule deer might be adversely affected by competition with elk.

Alternative B (Adaptive Harvest Management – Proposed Action)

Potential impacts of Alternative B (AHM) discussed below are minor, local, and/or short-term and are not significant.

If the Proposed Action of including AHM as part of the revised Elk Management Plan (Alternative B) is adopted, the number of elk counted statewide on post-season aerial trend count areas is expected to decline by 11,776 counted elk (12%). This is a decline from 98,131 counted elk currently to the summed statewide objective total for all EMUs of 86,355 (Table 3). If the counted total represents about 68% of the "actual" numbers of elk in Montana (see Chapter 3), this represents a reduction of about 17,400 total post-season elk. This proposed reduction is not spread equally across the state, but is concentrated in "problem areas". Population increases are proposed in some EMUs (Table 3). Increases from current levels totaling 4,552 observed elk are proposed in 14 EMUs (Table 3). Increases in actual elk are probably greater than the "standard" correction factor in these EMUs because many are in northwestern Montana, where visibility is lower and only small portions of elk winter range are sampled (Table 3). Decreases from current levels totaling 16,328 post-season counted elk are proposed in 22 EMUs (Table 3). EMUs with proposed reductions generally contain higher portions than average of elk using private lands. The proposed reduction in elk numbers would maintain them within recent (10-15 year) ranges. However, reduced elk numbers in some areas are not certain under the Proposed Action. Through AHM, FWP is supplying regulation options to reduce elk numbers, however landowners in areas with elk overabundance problems must supply access to elk hunters for reduction in numbers to occur.

Objectives for bull:100 cow ratios or percent bulls in the population post-season change very little in the revision of the Statewide Elk Management Plan (Proposed Action). Complete comparisons are not possible because of changing EMU boundaries and different methods of presenting objectives in some cases. For areas (not EMUs) where comparisons could be made, objectives for proportion of bulls in the post-season population increased from 1992 in 8 areas, decreased in 5 areas, and were the same in 19 areas. Generally all objectives are for 10 bulls:100 cows or 7% of the population bulls or higher in all except 3 EMUs. These EMUs are the Birdtail Hills (mostly private land access) and the Castle and Little Belt EMUs, where the general bull regulation is antlered bull. Reduction of populations in some areas by concentrating harvest on antlerless elk could temporarily increase bull:100 cow ratios post-season. Any increase would likely not be sustained once populations were at objective level.

Calf:100 cow ratios are likely most dependent upon weather factors (moisture – drought/lush growth of vegetation and winter severity) and predation level. However, if population levels are high enough in some areas currently to affect nutrition, a reduction

in elk numbers resulting from the Proposed Action (Alternative B) could result in increased calf recruitment. This would not occur if increased forage quantity/quality made available were used by other species (domestic livestock or other big game species).

In the short-term, hunter harvest of antlerless elk would increase under the Proposed Action (Alternative B). This increase would occur as a necessary condition of reducing elk numbers to objective level (11,776 counted elk – est. 17,400 fewer total elk) in addition to removal of the annual surplus (about 30,000 elk annually). If we use the mid-point estimate of 145,000 post-season elk in Montana (see Chapter 3) and an average statewide population post-season ratio of 15 bulls and 30 calves:100 cows, about 30,000 elk 6 months of age and older must be harvested or die from other causes each year to maintain population stability. A reported harvest of 25,500 + 15% crippling loss would equal the annual surplus (30,000 elk). With additional natural losses, a reported harvest of less than 25,500 would remove the annual surplus. Reported harvests for 1999-2003 averaged 24,100 elk (10,712 bulls and 13,277 antlerless). Including an increasing factor for crippling loss, only in 1992, 1994, 1996, 2000, and 2003 did hunting related causes of death likely remove the annual surplus of elk (thus the growth of some elk populations). Harvest did not always occur where it was most needed, so even during these years elk population growth continued on some areas. To achieve objectives within about 2 years, annual reported harvests of about 33,000 elk would have to occur. To achieve objectives within 3 years, annual reported harvests of 31,500 would have to occur. These increased harvests would occur disproportionately across the state, concentrated primarily in areas with much private land that were above objective. Proposed and predicted short-term increases in elk harvest may not occur under Liberal Regulation Packages in AHM if landowners in affected areas do not allow adequate access to hunters.

For the longer term, when numbers of elk counted are reduced to objective, an estimated 17,400 fewer elk would be in the post-season population (see earlier). Using the same post-season population ratios as earlier, the annual surplus would be about 3,600 fewer elk at objective. By including estimates for crippling loss and natural factors, a reported harvest of 2,500-3,000 fewer elk at objective than at current levels would maintain stability. Thus, annual reported harvests of about 22,750 elk at objective level (compared to the recent 5-year average of 24,100 elk) would maintain stability. For the long-term, once elk were reduced to objective level, the predicted cumulative effect is that annual statewide harvests could be about 1,350 less (6 % less, 675 bulls and 675 antlerless) than during 1999-2003. This is a minor effect, being much less than the annual fluctuations in harvest that occur due to variations in weather conditions during hunting season. Total statewide elk harvest ranged from an estimated 19,552 to 28,916 (difference of 9,364 elk) during 1999-2003.

A reduction of elk numbers in some areas possibly could benefit other big game species such as mule deer.

HUMAN ENVIRONMENT

Noise/Electrical Effects:

Neither Alternative will have direct, indirect, or cumulative impacts on noise or electrical effects.

Land Use:

This section considers impacts to lands and their uses, including productivity or profitability, lands with special designations, or impacts on residences.

Alternative A (No Action)

Potential impacts of Alternative A (No Action) discussed below are minor, local, and/or short-term and are not significant.

The increasing trend in elk numbers in some areas under current management (Alternative A – No Action) would likely continue to some degree until natural mortality (severe winters, reduced calf recruitment, increased predation) reduced elk numbers. In the short-term, increased numbers of elk could increasingly compete with domestic livestock for forage in these areas, potentially reducing nutritional levels for both. Reduced nutritional levels could potentially result in reduced weights of domestic livestock, reducing profitability for some local livestock producers. Also, these local livestock producers might potentially have increased costs (reduced profitability) relative to purchase of hay or other winter forage. It is unknown and unquantified whether reduced profitability would occur at all, or to what degree it would occur. Related analysis of land productivity and profitability will occur under the section Community Impacts – Economic issues. Continuing increases in elk numbers could potentially reduce the productivity of land in some areas as discussed under the Section – Soil, Water, and Vegetation. However, this is unlikely to occur because natural mortality factors (winter loss, reduced calf production and survival, and predation) would prevent elk populations from reaching those levels.

The ongoing program of purchasing conservation easements from willing sellers on properties with important wildlife values (including elk) would continue as priorities and funds allowed. These properties would remain in agricultural production, but housing development could be precluded or grazing systems prescribed and hunter access guaranteed.

No other known potential impacts to land use would occur under the No Action Alternative. The Gallatin Closed Area would not be opened to hunting for 5 either-sex elk permits as the Gallatin Special Management Area under the No Action proposal and no potential impacts to land use would occur there.

Alternative B (Adaptive Harvest Management – Proposed Action)

Potential impacts of Alternative B (AHM) discussed below are minor, local, and/or short-term and are not significant.

In areas where they are above objective levels, elk are likely to be reduced in number by the Proposed Action (see earlier). Therefore, compared to the No Action Alternative, competition with domestic livestock for forage in those areas is likely to be reduced by an unknown degree (about 8,700 cattle equivalent AUs maximum if all elk above objective were entirely on private land the entire year). This might slightly increase profitability of some local livestock producers if species other than elk did not fill the vacuum created by fewer elk.

The Gallatin Closed Area would be opened to hunting for 5 either-sex elk permits as the Gallatin Special Management Area under the Proposed Action (Alternative B). This would be a change in land use designation from closed to hunting to open to hunting. Issuing 5 either-sex permits in an area with adequate elk numbers and many large, old bull elk adjacent to a "refuge" (Yellowstone National Park) will not significantly impact the elk population. Five hunters spread over the course of the archery and general season will not affect elk distribution (e.g. see discussion of "private land refuges" with few hunters). The 5 permits for either-sex elk in this area with many "trophy" bulls will be popular, high-demand permits.

Grizzly bear inhabit the area that includes the Gallatin Closed Area and are listed under the Endangered Species Act as having Threatened status. Adoption of the Gallatin Special Management Area is not expected to have significant impacts to grizzly bears, hunters, or significantly increase bear-human encounters. The entire area surrounding the Gallatin Closed Area is grizzly bear habitat, and excluding Yellowstone National Park (YNP), is currently open to hunting of elk. The home ranges of grizzly bears using the area that includes the Gallatin Closed Area are large enough that most, if not all, have been and are annually exposed to hunter camps and elk gutpiles (K. Frey, FWP Bear Management Specialist, pers. comm.). Further, the Gallatin Closed Area and adjacent YNP area is open to hikers and campers year long currently. Opening the Gallatin Closed Area to 5 either-sex elk permits will be unlikely to expose grizzly bears to a new experience. All adjacent areas currently open to elk hunting are signed by FWP regarding cautions about hunting in grizzly bear habitat and should the Gallatin Closed Area be opened as the Gallatin Special Management area, signage would extend to that area. Hunters receiving the special permits will be notified of potential problems and recommended protocol for hunting in grizzly bear habitat.

The ongoing program of purchasing conservation easements from willing sellers on properties with important wildlife values (including elk) would continue as priorities and funds allowed. These properties would remain in agricultural production, but housing development could be precluded or grazing systems prescribed and hunter access guaranteed.

Risk/Health Hazards:

Neither Alternative will have direct, indirect, or cumulative impacts on human health risks or hazards.

Community Impacts:

This section considers potential impacts to human population growth, distribution, social structure, employment, transportation, industrial or commercial activities, or personal income.

Neither Alternative will have direct, indirect, or cumulative impacts to human population growth or distribution, social structure, or transportation.

Alternative A (No Action)

Potential impacts of Alternative A (No Action) discussed below are minor, local, and/or short-term and are not significant.

If elk numbers in some areas remain high or increase temporarily under Alternative A, income to some livestock operations could decline slightly or temporarily if forage competition occurs. This income decline would be extremely minor on a statewide basis compared to fluctuations due to market conditions and fluctuations in the recent past (see Chapter 3). However, it is possible that individual local operations could experience greater impact.

No change to license fee income to FWP is expected.

No change in expenditures for improvements to aerial surveys for elk will occur.

Antlerless only regulations could be adopted by the annual rule process under Alternative A. If adopted, potential minor and temporary effects on individual outfitter income would be the same as discussed for Alternative B.

If increases in elk numbers continue in areas where hunting is primarily limited to outfitted clients, outfitters in those areas could see some increased income. This increase in income to some local outfitters would be at the expense of other outfitters statewide because total number of non-resident elk licenses is limited legislatively.

Alternative B (Adaptive Harvest Management – Proposed Action)

Potential impacts of Alternative B (AHM) discussed below are minor, local, and/or short-term and are not significant.

Reduction in elk numbers in local areas anticipated by implementation of Alternative B would be expected to result in additional forage available for domestic livestock or

wildlife species other than elk. To the extent that a limited amount of additional forage was made available for domestic livestock, either a greater weight gain (if forage quantity and quality were limiting) or increased ownership of additional livestock could result in an unknown additional income for local livestock producers. On a statewide basis, the proposed reduction in CE elk AUs (8,700) is minor compared to the maximum increases and decreases in cattle AUs from 1990-2004. The proposed reduction is 1.9% of the increase (460,000) in cattle AUs from 1990 to 1996 and 2.3% of the maximum reduction (383,000) in cattle AUs from 1996 to 2004. At the local, site-specific level, however, certain livestock producers could see a bigger percentage reduction in forage competition with elk.

Demand for elk hunting licenses has been elastic, and has even increased, despite past license fee increases and changing numbers of elk. The decrease in local elk numbers proposed in Alternative B is not expected to affect number of licenses sold or only do so in a minor or temporary manner. In the short-term, if second elk antlerless licenses (A-9/B-12 licenses) are issued in areas of elk overabundance, license fee income to FWP would increase slightly. Potential loss of income due to fewer permits issued and more either-sex regulations would be minor. About $3.00 of the $6.00 application fee covers administrative costs (H. Woresch, FWP License Bureau Chief, pers. comm.). Some of the remaining $3.00 is refunded to unsuccessful applicants if their refunds in total are over $5.00. Maximum reduction in net income to FWP from fewer antlerless permits issued might be in the range of $60,000 (20,000 permits x $3.00). Adoption of Alternative B will be unlikely overall, to significantly affect license fee income to FWP.

Proposals to increase the number and frequency of aerial surveys to monitor elk under Alternative A would increase costs to FWP. An estimated $1,000,000 would be required to develop observability estimates for more types of habitat (see Chapter 3). This expenditure might be spread out over 10-12 years, but that would also likely result in inflationary increases in the total estimated. Improvements in existing and proposed annual surveys would cost an estimated $300,000 annually (see Chapter 3). These increased expenditures are planned and prioritized, but for the most part, would not be accomplished unless additional funds became available. Thus, there are no irreversible or irretrievable commitments to this proposed expenditure.

Adoption of Alternative B should not affect demand for non-resident licenses or affect outfitter income because of fewer non-resident licenses sold. For some EMUs, the "regulation of last resort" in the Liberal Package is an **antlerless only** season or portion of the season until the population has been reduced to objective. The reduction in time (or even an entire season) that bulls were legal to hunt in some local areas would likely temporarily reduce income to outfitters and/or landowner/outfitters in that local area. However, the shifting in hunting pressure to antlerless only for a year or two would likely reduce the population to objective in that short time. After that period, a Standard Regulation Package would be recommended. Because of the reduced hunting pressure on bulls during the period, there would then be increased numbers of bulls and they would be older and larger antlered, increasing the values of hunts for the local outfitter or

landowner/outfitter. This increased availability of older, larger bulls would likely be temporary.

If all elk populations are reduced (or increased) to objective level by implementation of Alternative B (Proposed Action), there could temporarily be increased income for commercial meat processors during the reduction phase. However, the predicted decline in annual harvest at objective level (1,350 elk) might cumulatively slightly decrease income (possibly up to 6%) to commercial meat processors.

Public Service/Taxes/Utilities:

Neither Alternative is expected to significantly affect public services, taxes, or utilities. To the extent that any minor fluctuations in income discussed in the previous section on Community Impacts occurs, an even more minor and temporary fluctuation in taxes would occur under either Alternative.

Aesthetics/Recreation:

This section evaluates impacts on scenic areas, vistas, designated wilderness areas, and on recreation and tourism.

Neither Alternative would have direct, indirect, or cumulative impacts on scenic areas, vistas, or designated wilderness areas.

Alternative A (No Action)

Potential impacts of Alternative A (No Action) discussed below are minor, local, and/or short-term and are not significant.

It is unlikely that continuing to manage under the current Elk Management Plan (Alternative A) would impact recreation or tourism in any way. However, hunting regulations proposed as Regulation Packages under the Proposed Action (Alternative B) could also be proposed and adopted individually by area as part of the annual rule season setting process under Alternative A. The extent to which this might occur and locations are unpredictable and uncertain, so analyses of impacts are not possible (however, see analysis of implementation as a "Program" below).

Alternative B (Adaptive Harvest Management – Proposed Action)

Potential impacts of Alternative B (AHM) discussed below are minor, local, and/or short-term and are not significant.

Implementation of Alternative B is not expected to impact tourism. Opportunities for viewing elk will not change significantly. Also, sales of non-resident licenses will likely not change, so numbers of non-resident hunters contributing to tourism will not change.

Adoption of Alternative B will impact the choices of recreational opportunity available to hunters. These opportunities and choices will vary across the state, but in general, there will be much greater opportunity for hunters to harvest antlerless elk without applying for a permit should the Proposed Action be adopted.

Should elk numbers be reduced to objective levels by application of the Proposed Action (AHM), the predicted statewide cumulative effect is that about 675 fewer bulls (about 6%) would be available for harvest as annual surplus each year (see earlier). This would be a minor effect, being much less than the annual fluctuation in bull harvest that occurs annually as a result of varying weather conditions (varied by 5,554 bulls among years, 1999-2003).

Under the Proposed Action, should bull:100 cow ratios or number or percent of bulls in the population drop below objective, and a Restrictive Package that included unlimited or limited permits be recommended, all hunters, including archers would be required to apply for the permits. Where permits for bulls are necessary to maintain objectives, archers would be required to meet the same restrictions as general season hunters. This is a reduction in choice in recreational opportunity for archers compared to the No Action Alternative. The requirement for archers to apply for limited permits would reduce the number of non-resident archers more than resident archers. This, potentially could have minor affect on outfitter income in some areas.

For the Missouri River Breaks EMU the proposed reduction in elk numbers is greater than most other EMUs. After the reduction was achieved, with fewer cows to produce calves, the number of bull permits issued would decline compared to current levels in order to maintain bull:100 cow ratios and age structure. However the decline in numbers and permits would result in the number of permits issued still being within the range that has occurred since the current Elk Management Plan was adopted in 1992. Similar, but smaller reductions in bull harvest or permits issued would occur in other EMUs with proposed reductions in elk numbers (Table 3).

Cultural/Historical Resources:

This section evaluates impacts on past and present human habitation, such as changes in structures, sites, artifacts, campsites, farmsteads, and historic buildings.

Neither Alternative will have direct, indirect, or cumulative impacts on Cultural or Historical resources.

RELEVANT ISSUES OR SUB-ISSUES NOT ADDRESSED WITHIN THE ANALYSIS BY RESOURCES

This section addresses concerns or potential impacts related to sub-issues raised by the public or internally that did not naturally fit under the analysis by Resource categories above.

Access:

Under Alternative B (Adaptive Harvest Management) Regulation Packages in many EMUs are designed to provide new tools for FWP and landowners to reduce elk numbers. It is possible that adoption of a consistent, predictable, and disciplined Program of Regulation Packages designed to maintain elk numbers at objective level through greater use of antlerless harvest might provide more incentive for some private landowners to allow greater hunter access. Regulations that might be implemented under Alternative A (No Action) would likely not be as consistent, predictable, or disciplined and be less likely to inspire landowners of their effectiveness. This might make them less likely to risk the potential negative aspects of hunter access compared to possible positive results.

Hunting Regulations/Strategies:

The FWP Commission has authority [MCA 87-1-301, especially sections (1)(b) and (3)] to set annual hunting, fishing, and trapping rules (Regulations) by annual rule superceding species management plans (though species management plans are approved by the Commission). Setting of regulations by annual rule includes opportunity for public comment. Any regulations and/or Regulation Packages included in the Proposed Action (Alternative B) could be approved/implemented under the current Elk Management Plan (Alternative A – No Action) by the FWP Commission via the annual rule process. Thus, although some analysis of individual regulations was provided, analyses of impacts concern adopting the process of Adaptive Harvest Management (AHM) rather than impacts of specific regulations.

The predicted impact of adopting Alternative B is that management responses will occur more quickly than under Alternative A. Regulation Packages in the Proposed Action are "self-mitigating". That is, due to firm objectives and monitoring guidelines, should implementation of a Regulation Package result in detection by monitoring that elk populations were above or below objectives by a specified amount (varies with EMU) one of the other Regulation Packages designed to produce a countering effect would be recommended. Thus, changes in elk population size and structure that go beyond the objective range should be short-lived under the Proposed Action (Alternative B). Past history has indicated that responses have not always occurred as quickly as necessary under the current Elk Management Plan (Alternative A – No Action).

The public was quite aware, as pointed out in the Draft revised Elk Management Plan and this EA, that weather, over which FWP has no control, has major impacts on annual elk harvests. Concerns were both that adequate harvest could not be achieved without

appropriate weather conditions and that with certain weather conditions, overharvest could occur. The FWP Commission has adopted (8 July 2004) guidelines for a 24-hour notice for closure of general antlerless elk hunting in some areas should check station data indicate that "excessive" harvest are occurring based on past years averages. Addressing the other concern, the FWP Commission has adopted policy for season extensions should mild weather result in lower than desired harvests. The ARM rule for season extensions has not been completed at this time and cannot be presented here. These policies/rules/guidelines will enhance implementation of the Proposed Action, but will apply to the No Action Alternative as well.

Biological/Ecological Issues:

FWP policies, guidelines, and plans for management of Chronic Wasting Disease and Brucellosis are the same under Alternative A (No Action) and Alternative B (AHM). Disease is more likely to spread or be maintained at high elk densities or on feedgrounds (Weigand and Mackie 1985, Aune et al. 2002). Because it is more likely that elk numbers will be reduced in local areas of western and maintained at low levels in eastern Montana areas near bordering states/provinces with infections under Alternative B than Alternative A, there should be some reduced (unquantified) risk of the spread or maintenance of Chronic Wasting disease and Brucellosis under implementation of Alternative B.

Information/Data Issues:

Alternative A (No Action)

FWP will publish an annual game count (including elk), estimating numbers to the best of its ability as mandated by SB 209 (2003 session Montana Legislature) [MCA 87-1-201 (10)] under either Alternative. These estimates will likely be based on methodology using harvest estimates, population sex/age ratios, and mortality rate estimates. Improvements to this method could be made in some cases by adjustments for observability made to aerial population counts. Studies to determine observability rates, will not occur under Alternative A and estimates of elk numbers will not improve. Similarly, increased number of areas surveyed and increased frequency of aerial surveys would not occur under Alternative A. Because of this, improvements in the accuracy and reliability of determining elk numbers would not occur. Lack of improvements in accuracy and reliability of monitoring elk population characteristics would result in less timely and adaptive responses to changes in elk populations.

Improvements to providing timely, accessible information to the public about elk population status (see discussion in the next section) would be made under Alternative A as well, if at all possible. However, this outcome is less certain and the information would be less reliable.

Alternative B (AHM)

As in Alternative A, FWP will publish an annual game count (including elk), estimating numbers to the best of its ability as mandated by SB 209 (2003 session Montana Legislature) [MCA 87-1-201 (10)] under either Alternative. These estimates will likely be based on methodology using harvest estimates, population sex/age ratios, and mortality rate estimates.

Improvements to this method are proposed under Alternative B including studies to determine adjustments for observability made to aerial population counts. Additionally, under Alternative B, FWP proposes to add additional survey areas and increase the frequency of monitoring of some existing survey areas. These improvements in monitoring would increase the accuracy and reliability of elk population monitoring and provide for more timely response to changes in elk population characteristics, including both over- and under-abundance.

The Draft revised Elk Management Plan contains, for the first time, published Figures showing current and historical information on the results of FWPs aerial elk "counts". This information, along with the listing of goals and objectives and "trigger levels" of monitoring measurements that require a regulation change to change the direction of elk population numbers or ratios, provide new information to the public. This information helps the public understand current elk population status and predict likely regulation change (or lack of change). As part of the Draft revised Elk Management Plan, FWP proposes to provide this information to the public annually through its website and by other methods to achieve its goal of improving dissemination of information to the public.

CONCLUSIONS

Private Property Regulatory Restrictions:

Actions described in this environmental analysis do not regulate the use of private, tangible personal property, or real property under a regulatory statute adopted pursuant to the police power of the state; neither the proposed action or no action Alternatives involve the denial of an application for a permit or other permission; and the Alternatives do not restrict the use of a regulated person's private property. None of the actions described herein, including the purchase of habitat protection or access agreements from willing landowners place regulatory restrictions on private property, therefore the proposed action does not require an evaluation of regulatory restrictions on private property (MCA, 75-1-201).

Evaluation of Mitigation, Stipulations, and Other Controls:

There are no mitigations, stipulations, or other controls associated with the proposed Alternatives. Therefore, no evaluation is necessary.

Finding of Need for Environmental Impact Statement:

FWP has determined that the appropriate level of analysis for the proposed action is an EA and that an Environmental Impact Statement is not required. FWP analyzed the impacts of 2 Alternatives in Chapter 4, Environmental Consequences. For each impact, FWP considered the significance criteria, as set out in 12.2.421, ARM, including a) the severity, duration, geographic extent, and frequency of impact; b) the probability that the impact will occur or reasonable assurance that the impact will not occur; c) growth-inducing or growth-inhibiting aspects of the impact, including the relationship of the impact or contribution to the cumulative impacts; d) the importance to the state and to society of each environmental resource or value affected; e) any precedent that would be set as a result of an impact of the proposed action that would commit the FWP to future actions; and f) potential conflicts with local, state, or federal laws, requirements, or formal plans.

Through the reviews and analysis in Chapter 4, FWP determined that none of the effects associated with the Alternatives would have a significant impact on the physical environment or human population of the state. Specifically, proposed changes in elk populations, hunter harvest, elk grazing pressure, and other associated factors fall within historical levels existing since 1992. For some elk populations, objectives are at the lower end of ranges observed since 1992, for others, objectives are near the higher end of observed ranges. Changes in elk harvest anticipated under the proposed action both in the short-term and cumulatively are small compared to annual fluctuations that historically occur due to differences in weather conditions during hunting season. Changes in elk grazing pressure that are anticipated are minor compared to historical annual fluctuations in grazing pressure by domestic livestock in the same areas. Also, any potential impacts to income of landowners, private businesses, or FWP are very minor compared to annual fluctuations due to other sources. The analysis of impacts and effects did not identify significant impacts to the physical or human environment and an EA is the appropriate level of analysis.

CHAPTER 5. LIST OF INDIVIDUALS ASSOCIATED WITH THE PROJECT

Preparers:

Gary Hammond	Chief Management Bureau, Wildlife Division, FWP Project Leader
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CHAPTER 6. LIST OF PERSONS AND AGENCIES CONSULTED OR PROVIDING INFORMATION

Montana Fish, Wildlife, and Parks

All Regional Wildlife	Managers and Wildlife Biologists
Keith Aune	Research and Technical Services Supervisor
Lydia Bailey	GIS Programmer/Analyst
Rob Brooks	Economist and Responsive Management Unit Coordinator
Alan Charles	Landowner/Sportman's Coordinator
Don Childress	Administrator, Wildlife Division
James Colegrove	Information System Support Specialist
Sue Daly	Budget Development Analysis Bureau Chief
Gary Dusek	Wildlife Biologist
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Steve Knapp	Habitat Bureau Chief, Wildlife Division
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Becky Price	Paralegal
Martha Williams	Attorney
Hank Worsech	License Bureau Chief

Montana Board of Outfitters

Wayne Johnston	Executive Officer

Colorado Division of Wildlife

Jerry Apker	Ranching For Wildlife Coordinator
John Ellenberger	State Big Game Coordinator

Idaho Department of Fish and Game

Brad Compton	Big Game Coordinator
Mark Hurley	Research Biologist

Utah Department of Natural Resources

Wes Shields	Cooperative Wildlife Management Unit Coordinator

APPENDIX A

Summary of Elk Scoping Comments

	Number of Comments
Weather is the problem/ Extend seasons 1-4 weeks into December/ Start season 2 weeks later & go into December	83
Open up closed roads/ too many closed roads/increase retrieval opportunities/ also some related to ageing hunter issue	58
Hunter access to private lands/"refuges" /fee hunting	57
Wolves/other predators are a problem	56
Outfitter leasing is a problem/ reduce outfitter numbers/tax leased land higher Eliminate Outfitter set-aside, etc.	56
Oppose the Montana Stockgrowers proposal /privatizing wildlife (Montana Wildlife Partnership)	52
Access issues in general	42
More road closures/like road closures/less access/preserve wilderness/roadless	41
More trophy bull management/raise bull:100 cow ratios	36
ATVs are a problem	29
Increase Block Management/Like B.M.	24
Local issues	22
The Youth ES season is great/extend to 16/late season, etc.	21
FWP should not be responsible for elk problems due to NO hunting/ do not help those who do not allow general public hunting	21
7-year waiting period for Bull elk permits	16
Open more areas to antlerless hunting (2 days – 1 week – season-long)	15
Overgrazing by livestock on public lands	15
Likes BTB season/Entire State should be BTB	15
Hunter aging issues (tied in with more access & retrevial)	15
Elk numbers are NOT too high (at least on public lands, espec. In NW Montana)	15
Access to public lands blocked by private lands/buy road/trail access to public land	15
Get rid of BTB season in northwest Montana where timber is thick/illegal spike mortality/and in other areas	14

APPENDIX A (CONT.)

	Number of Comments
Elk numbers are too high/carrying capacity issues/landowner issues	14
Have more late season hunts/damage hunt rosters	13
Elk management in Montana has been a success/FWP has done a good job	13
Chronic Wasting Disease	13
Calf/cow ratios are declining/may not need to reduce elk numbers	13
Landowners who allow general hunting but suffer damage from elk later should sue their neighbors who are closed to hunting or sell access or lease to outfitters – or State should fine these landowners/similar to weed program/ Rural Neighbor Program	11
Better information from FWP about where harvest is needed	11
Non-resident license fees are too high	11
Put elk permits (mostly bulls) on the preference system	10
A-7 licenses are not attractive/problems with access	10
Non-resident/corporate landowners are a problem/access	10
Choose your weapon (archery or rifle, not both)	10
Better population counts/censuses/inventory	9
Limit archery hunters just like rifle hunters (especially eastern Montana)	9
Have a muzzleloader season (early/late)	9
Tie hunting access to grazing rights/fees on public lands	8
Senior citizens should have ES hunts like Youth hunts	8
Against general Montana resident hunters “cleaning up overabundance of antlerless elk” while the landowners, outfitters and rich NR hunt bulls	8
Likes A-7 license	7
Antlerless permit holders should only be able to shoot antlerless elk	7
Increased law enforcement	7
Herd/haze elk off private lands that do not allow general public hunting	7
Have more archery hunting opportunities	7
Use a quota system – season runs until quota filled	7

APPENDIX A (CONT.)

	Number of Comments
Reduce hunting of cows & calves	7
Have rifle permits during the rut/equity with archery	7
Issue second elk tag for antlerless elk ("B-tag")	7
Habitat issues (multiple – weeds, grazing, logging, housing development,etc.)	7
Problems with/Oppose Youth ES hunt (fathers & uncles kill the elk)	6
Fencing issues – elk damage to, landowners purposefully enclosing elk, etc.	6
Have public game damage hunts instead of FWP shooting (R-5)	6
Have mandatory hunter report card/call-in, etc.	6
Comprehensive/unified management – State, Federal, Private (Stakeholder Councils)	6
More opportunities for disabled hunters	5
Block Management has problems (too many rules, too hard to get on, etc.)	5
Increase the number of antlerless tags	5
Federal & State goals differ/need to work together	5
Early hunts (archery or otherwise) drives elk to private land refuges	5
Trophy hunting is over-emphasized	5
Put all elk hunting on permits (drawing/Limited Entry)/or validation	5
Wildlife Management Area issues (grazing, hunting, etc.)	5
Equitable allocation of hunting opportunity	4
Have special hunts on complaining landowners land, if not, NO help	4
Need higher Non-resident license fees	4
Have split season (early – rest period – late)	4
FWP should buy more land, especially in problem areas	4
FWP & Commission is bought & paid for by farmers, ranchers & outfitters – does not represent average sportsman	4
Commission favors landowners & outfitters, not average hunter	3
More Conservation Easements, must include public access	3
Landowners face a lot of elk/hunter problems without significant compensation	3

APPENDIX A (CONT.)

	Number of Comments
MFWP should not try to eliminate expanding elk herds in eastern Montana	3
More incentives for landowners	3
Change section corner crossing law for more access (State Lands)	3
There are too many hunters	3
Have early damage hunts only on private, not public lands	3
There is too much logging	3
Archery wounding loss	3
More logging to increase forage	2
Elk license should not be prerequisite for drawing applications (discriminates against eastern MT hunters)	2
Post Block Management information on the website	2
Effects of elk population increases on mule deer	2
Restrict all elk hunting to antlerless only until goals are met	2
Raise all license fees, resident & Non-resident	2
Enforce 10% Non-resident rule, including for unlimited archery	2
Concerned about “shoot-outs” (Snowies, Big Hole)	2
Elk are lured to private leased land by specially planted alfalfa fields	2
Transplant surplus elk	2
EMU is too broad a unit, need to manage by smaller problem areas	2
Cheaper antlerless tags for Non-residents & residents	2
Likes Stockgrowers proposal (Montana Wildlife Partnership)	2
Maintain long hunting seasons	2
Some of the local Working Groups have been helpful	2
Do not implement choose your weapons	2
Change antlerless permits to ES permits	2
Open season Saturday instead of Sunday	2

APPENDIX A (CONT.)

The following are "one-of-a-kind" statements

MFWP has arbitrary goals for elk numbers

Against multiple elk tags ("B-tags")

Too many restrictions on guides/outfitters – locals should be able to guide

Have the least hunting possible

Adjust elk population number objectives upward

Don't waste time on the 2-way radio issue

Give elk counts top priority

Do not have drawings for residents for general elk hunting

Need training for black powder hunters

You can't tell private landowners what to do

Have antlerless hunting during the first part of the season

Provide detailed maps and management plans for each EMU

Open season a week earlier

Sell extra tags over-the-counter

Horseback hunters are a problem

Does not like to hunt on private lands

Put Elk Plan/HD goals on the FWP website

Issue more Non-resident tags

Preference for Non-resident senior citizens

Do not limit cow tags to specific areas

Do not allow any Non-resident hunting

Have local drawings

Real Estate Brokers are "selling elk" to Non-residents who lock up access

Offer surplus permits first to those unsuccessful in drawings

FWP should shoot elk, including bulls in damage situations so landowners can't profit (Pompeys Pillar)

APPENDIX A (CONT.)

The following are "one-of-a-kind" statements (cont.)

Against late-season hunts (unethical behavior)

Make elk hunters carry pepper spray

Use programs like Colorado's "Ranching for Wildlife"

Landowners adjacent to private land "refuges" suffer damages

FWP needs to be able to control hunting on private lands

Concerned we will get overharvest if we get more severe weather

Against waiting periods to get elk permits

Against preference point system for elk permits

Make the definition of a "spike" more clear

Poor attitudes of wardens

With over-population, starvation could be a problem

MFWP should describe optimal elk habitat

MFWP should be more aggressive in oversight of Federal Agency habitat manipulations and Travel Plans

Take away landowner preference if no public access

Raise license fees and give money to landowners who's land animals are shot on

Landowners need income

Institute Masters Hunting Program

Against State Lands Access permit

FWP is busy handing out bribes to landowners

Better signage

Landowner liability issues

Lower hunting age to 10- years-old

Does not believe various FWP information

Start season 3 weeks earlier (like Wyoming)

Poor habitat management by State and Federal Government

APPENDIX A (CONT.)

The following are "one-of-a-kind" statements (cont.)

Use a 5-point regulation

Tax incentives to landowners for public hunting

Increase Non-resident opportunities

Reduce Non-resident opportunities

There will always be elk damage problems no matter how many elk there are

Non-resident property owners should get an elk license every year

Do not do anything drastic

Previous Elk Plan caused problems for landowners, ranchers, loggers, miners, etc.

Hunting is a dying sport

Various legal EA, MEPA issues

Use multiple-use principles

If you limit vehicle access, also limit horses and mountain bikes

Get rid of NR Combination license – sell individual licenses by species

Make regulations less confusing

Landowners should not be able to specify sex of kill

State Game Ranges should be permit only hunting

Hunting season types should discourage commercial use (outfitting)

Weeds are a problem because of elk over-grazing

Hunting seasons are too long

There are positive economic benefits to PUBLIC elk

You need new funding mechanisms

FWP may have to do the shooting in some areas

Consider the entire elk unit, not just the problem area

More flexible management, including changes during on-going seasons

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